SLEs PORTFOLIO

SNAPSHOTS OF CHANGE

Real-life stories from the second implementation phase of the STE(A)M Learning Ecologies project

www.steamecologies.eu

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them. This work is supported by Scientix®, an initiative of European Schoolnet®, and OS Together Network.

INDEX

The Project ..... p. 3
Methodology ..... p. 4
Cyprus ..... p. 5
Germany ..... p. 9
Greece ..... p. 13
Ireland ..... p. 17
Italy ..... p. 21
Malta ..... p. 25
Norway ..... p. 29
Portugal ..... p. 33
Romania ..... p. 37
Serbia ..... p. 40
Spain ..... p. 44
Additional Countries..... p. 48

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

THE PROJECT

STE(A)M Learning Ecologies (SLEs) is a three-year (January 2023 - December 2025) **Horizon Europe project** funded by the European Commission, developing engaging Open Schooling-enabled science learning paths for all in learning continuums of formal and informal learning environments.

The project highlights the necessary conditions for bringing together **formal, non-formal, and informal education actors**, as well as **enterprises and civil society,** giving all space and motivation to take initiative and central roles. By building on promising previous results, the project proposes a framework that facilitates the creation of inclusive educational synergies in the form of interconnected knowledge ecosystems.

The project is also studying the benefits of **Open Schooling** as a driving force in European and national policymaking. To achieve these, SLEs is introducing the powerful concept of "**learning ecologies**" as vehicles for envisaging and realising impactful local Open Schooling partnerships.

The project developed a total of **109 SLEs** in **16 countries**. This Portfolio presents a selection of 3 SLEs per country.

THE CONSORTIUM

European Schoolnet – Transforming education in Europe
ELLINOGERMANIKI AGOGI
ecsite – EUROPEAN NETWORK SCIENCE CENTRES & MUSEUMS
APRE – Agenzia per la Promozione della Ricerca Europea
MUSEOS CIENTÍFICOS
University of Cyprus
NTNU – Norwegian University of Science and Technology
HUMBOLDT-UNIVERSITÄT ZU BERLIN
WISTA – we get ideas done
Centro Ciência Viva do Algarve
MINISTRY FOR EDUCATION AND EMPLOYMENT
CENTER FOR THE PROMOTION OF SCIENCE
cúrom

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

METHODOLOGY

1. SLE INITIATION

- [ ] Identifying a community challenge to address
- [ ] Thinking of an efficient solution for it
- [ ] Reflecting on stakeholders able to implement your solution

At least 2 other actors with a shared goal!

2. PARTNERSHIP AND PREPARATION

- [ ] Approaching identified stakeholders
- [ ] Preparing the SLE with some key questions in mind

- Who will be impacted?
- What knowledge is needed?
- Have there been similar projects?

3. CO-CREATION AND IMPLEMENTATION

- [ ] Starting a co-creation process that includes all actors
- [ ] Creating a clear development plan by mutual agreement
- [ ] Planning of activities (Exploration, Experimentation, Evaluation)

Setting up a new initiative

Following an existing initative

4. REFLECTION AND RESULTS SHARING

- [ ] Reviewing successes and areas for growth
- [ ] Verifying that all stakeholders were included
- [ ] Rethinking lessons learnt and how to share them

- Were the learning outcomes useful?
- Did it really target the aimed actors?
- How can it be sustainable?
- Did it encourage girls participation?

VISIT THE '**CREATE YOUR SLE**' WEBPAGE, YOUR STEP-BY-STEP GUIDE TO IMPLEMENTING AN SLE

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

CYPRUS

SLEs Implemented in Cyprus

1. The Butterfly Project ★
2. Microplastics Detection using Fluorescence: Investigation of Samples from Coasts and Marine Organisms in Southwest Cyprus. ★
3. Investigation of the Miocene Ichthyofauna and Palaeoenvironmental Reconstruction of Cyprus Island ★
4. The Butterfly Project
5. The Butterfly Project
6. The Butterfly Project
7. The Butterfly Project
8. The Butterfly Project
9. The Butterfly Project
10. The Butterfly Project

For more information

Contact Anastasios Chovardas at chovardas.anastasios@ucy.ac.cy

★ *featured in this portfolio*

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

THE BUTTERFLY PROJECT

THE INITIATOR

Stephanos Avraam, Aradippou Gymnasium, Larnaca, Cyprus.

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE investigated biodiversity and climate change through butterfly observation and ecosystem interdependence. Students from lower and upper secondary levels engaged in hands-on fieldwork, collaborative gardening, and scientific data analysis, integrating biology, environmental education, and ICT. READ MORE

THE CHALLENGE

The decline in butterfly populations linked to climate change, urbanization, and pollution.

THE BENEFITS

Increased knowledge on climate change and biodiversity loss and what actions can be taken locally and personally.

THE COMMUNITY

- 12-15 years old students
- SEMEP network
- Universities, local education authorities
- Department of Forestry
- Parents, School leadership, volunteers
- Oil recycling EU-funded company

THE LEARNING PRODUCTS

- Butterfly identification sheet, photos
- eBMS data recording of species
- Presentations with findings, review of the scientific literature
- Presentation of results and findings

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

MICROPLASTICS DETECTION USING FLUORESCENCE

THE INITIATOR

Marianna Ioannou MSc, PhD, Biology instructor and researcher.

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE focused on microplastic (MP) contamination as a critical environmental challenge that poses a threat to all living organisms, including humans. Students investigated the presence of MPs in local tap water, sand samples, and the digestive systems of shrimps. Using the fluorescent dye Nile Red, they detected MPs and demonstrated their entry into the food chain. **READ MORE**

THE CHALLENGE

Environmental pollution caused by microplastics and how they affect all living organisms and humans, through the food chain.

THE BENEFITS

Increased environmental awareness and development of students' critical thinking skills, creativity, problem-solving, and ethical understanding as citizen scientists.

THE COMMUNITY

- 16-17 years old students
- SEMEP by UNESCO network
- Teachers, Researchers
- Local fishermen
- Private companies
- Municipalities

THE LEARNING PRODUCTS

- Fluorescent Stereoscope 'Glowscope'
- Methodology for sample collection and analysis
- Data recording and analysis with graphs and pictures
- Presentation to raise awareness

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

THE MIOCENE ICHTHYOFAUNA & PALAEOENVIRONMENTAL RECONSTRUCTION OF CYPRUS

THE INITIATOR

Dr. Aggelos Agathaggelou, Kykkou Lyceum Paphos.

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE explored fish otoliths as indicators of marine life during the Cenozoic Era, focusing on reconstructing fish fauna in the Levantine Basin from the Miocene and Pliocene epochs. By analyzing fossil otoliths, students investigated past ecosystem conditions (temperature, salinity, oceanic circulation), fish evolution and the impacts of climate change. **READ MORE**

THE CHALLENGE

Addressing the scientific and educational challenge of reconstructing the palaeoenvironmental history of Cyprus through the study of fossil fish otoliths from the Miocene and Pliocene epochs.

THE BENEFITS

Increased understanding of the deep-time connections between climate and life, marine conservation, ocean warming, and sustainable development in island communities.

THE COMMUNITY

- 16-17 years old students
- SEMEP by UNESCO network
- Teachers
- Academic Researchers
- Municipalities

THE LEARNING PRODUCTS

- Otolith specimen catalog
- Scientific illustrations and comparative diagrams linking past and present
- Reconstructed paleoenvironments
- Scientific Article

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

GERMANY

SLEs Implemented in Germany

1. Sustainable Urban Greening and Plant Diversity ★
2. Marine Plastic Pollution ★
3. STEM Summer School ★
4. Discovering STEM
5. Experience Chemistry @ HU
6. Girls in Tech
7. MINT Camp - Green Steel
8. Solar Energy
9. STEM Future Literacy
10. STEM Experience

For more information

Contact Melissa Horchemer at horchemer@wista.de

★ *featured in this portfolio*

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

SUSTAINABLE URBAN GREENING & PLANT DIVERSITY

THE INITIATOR

Lisa Bering-Uhl

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

The SLE focused on investigating plant diversity and gaining insights into the planning of sustainable urban greening. Students made use of a "Sense Box," which serves as a scientific measurement station for collecting environmental data. Moreover, a dedicated app was employed to support the identification of plant species.

READ MORE

THE CHALLENGE

Due to the increasing sealing of surfaces in cities, plant biodiversity is steadily declining. In addition, cities are becoming increasingly warmer as a result of climate change.

THE BENEFITS

Students deepen their understanding of plant biodiversity, urban greening, ecology and environmental protection.

THE COMMUNITY

- 15-year-old students
- Teachers
- Vocational School
- Organisation for Citizen Science and Education

THE LEARNING PRODUCTS

- Collection of environmental data at various locations
- Analysis and discussion of the data

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

MARINE PLASTIC POLLUTION

THE INITIATOR

Lisa Bering-Uhl

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

The SLE tackled the global challenge of marine plastic pollution. Students deepened their understanding of plastics and actively applied their knowledge by developing and producing a sustainable bioplastic alternative. Through hands-on activities, students built scientific skills and developed a deeper sense of responsibility for sustainability and environmental protection. READ MORE

THE CHALLENGE

Pollution of the oceans by plastics and contamination caused by microplastics

THE BENEFITS

- Understanding the impact of plastic pollution on the ocean and people
- Increased knowledge on plastics and bioplastics
- Practical skills and knowledge on producing bioplastics

THE COMMUNITY

- 14-16 years old students
- Formal education
- Research Assistant

THE LEARNING PRODUCTS

- Model experiment on ocean plastic removal
- Self-made bioplastic
- Presentations on personal plastic consumption and alternatives

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

STEM SUMMER SCHOOL

THE INITIATOR

Bessie-Fischer Bohn and Melissa Horchemer (WISTA Management GmbH)

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

The SLE gave students the opportunity to move from theory to innovative and creative practice during a three-day STEM summer school for STEM students who are researching a scientific idea and developing it into a product or business. Students developed skills in creative thinking, design thinking and problem solving, financial and mathematical education. **READ MORE**

THE CHALLENGE

Transforming students' ideas from initial concepts into fully developed projects.

THE BENEFITS

Students had the opportunity to work with experts and increase their creative thinking, entrepreneurship, financial literacy, and soft skills.

THE COMMUNITY

- 11-16 years old students
- Dr. Christian Segal, Cornelia Okon (Berliner Sparkasse)
- Jugend forscht
- Miriam Umhauer (Coach, Teacher & Mentor)
- Tobias Kirschnick, Vincent Harlang (WISTA Management GmbH),
- Quantune Technologies GmbH

THE LEARNING PRODUCTS

- Research and product ideas
- Brand logo
- Budget Plans
- Sketches and Prototypes

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

GREECE

SLEs Implemented in Greece

1. Learning about What an Earthquake is and What to Do to Protect Ourselves ★
2. Digital Creativity and Entrepreneurship ★
3. Designing a Mission to Another Planet to Establish an Extraterrestrial Human Colony ★
4. Computational Thinking Applications: Visualization of Earthquake Activity
5. Electric Vehicles and Robotic Solutions
6. Green City: Sustainable Urban Environment
7. Learning about the Mediterranean Diet: Acquiring Healthy Diet Habits
8. Natural Robotics: Proposing a Bioinspired Robotic Solution
9. Optimal Transportation Networks
10. Smart Solar Panels

For more information

Contact Mavromanolakis Georgios at gmavroma@ea.gr

★ *featured in this portfolio*

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

LEARNING ABOUT WHAT AN EARTHQUAKE IS & WHAT TO DO TO PROTECT OURSELVES

THE INITIATOR

Teachers of primary school – fifth grade and English language teachers, Junior High School of Ellinogermaniki Agogi, Greece

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

The SLE focused on the phenomenon of earthquakes. Students learned about curriculum topics such as tectonic plates, the inner structure of the Earth, characteristics of an earthquake, etc. They then focus on how to increase awareness about protection measures during the event of an earthquake, through hands-on and creative activities. **READ MORE**

THE CHALLENGE

Increasing public awareness about earthquakes and civic protection measures.

THE BENEFITS

- Knowledge about earthquakes, tectonic plates, and the inner structure of the Earth
- Practical skills on what we should do and don't do in case of an earthquake

THE COMMUNITY

- 10-11 years old students
- Teachers
- Experts - scientists
- National Observatory of Athens

THE LEARNING PRODUCTS

- A model seismometer constructed with simple materials
- Poster with protection measures – dos and don'ts during an earthquake event

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

DIGITAL CREATIVITY & ENTREPRENEURSHIP

THE INITIATOR

Georgios Mavromanolakis, Junior High School of Ellinogermaniki Agogi, Greece

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

The SLE focused on entrepreneurship. Students created geometric designs on everyday objects and, with marketing and sales experts' guidance, they began forming a real enterprise, complete with a brand name, logo, and intellectual property rights. They launched a social media campaign to promote their products and organized themselves like a real business. **READ MORE**

THE CHALLENGE

Encouraging creativity using digital tools and develop an entrepreneurial attitude and thinking.

THE BENEFITS

- Skills in ICT technologies and innovation (algorithms, programming and applications)
- Use of digital tools for creativity
- Entrepreneurship

THE COMMUNITY

- 12-14 years old students
- Experts: researchers
- Teachers
- Commercial company representatives
- Manufacturer/industry

THE LEARNING PRODUCTS

- Creative patterns
- Homeware products with creative patterns.

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

DESIGNING A MISSION TO ANOTHER PLANET TO ESTABLISH AN EXTRATERRESTRIAL HUMAN COLONY

THE INITIATOR

Primary School Teachers, Junior High School of Ellinogermaniki Agogi, Greece

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE focused on the design of a space mission to another planet with the aim of founding an extraterrestrial colony for humans. Students designed model rockets using CAD software and then built them with 3D printers. They built habitable bases and studied the essential properties for humans to live in, such as heat insulation, UV radiation protection, etc. **READ MORE**

THE CHALLENGE

Increasing awareness about the fragility of life on Earth by understanding how difficult it is for humans to colonise another planet

THE BENEFITS

- Increased knowledge of life on Earth and vital resources, and other planets in our solar system
- Practical technical skills: CAD software, 3D printers etc,

THE COMMUNITY

- 10-11 years old students
- Teachers
- Experts - scientists
- University of Athens
- National Technical University of Athens

THE LEARNING PRODUCTS

- Model rocket/spaceship
- Habitable human base mockup
- Experimentation results characterising the properties of the habitable human base

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

IRELAND

SLEs Implemented in Ireland

1. Waves of Positivity ★
2. 3D Printing and Podcast ★
3. How Excercise Impacts the Circulatory System ★
4. Empathy Detectives
5. Leaving Certificate Applied (LCA)
6. Green Lab
7. Neurons Behaving Badly
8. How Science and Engineering can Heal our Bodies
9. Protecting our Oceans against Plastic Pollution
10. Plastic is Not Fantastic

For more information

Contact Mary Deely at mary.deely@universityofgalway.ie

★ *featured in this portfolio*

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

WAVES OF POSITIVITY

THE INITIATOR

Deirdre Grace, teacher St. Nicholas' Parochial School, Galway, Ireland

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

The SLE sought to highlight the great things happening around ocean conservation, offering a refreshing counterbalance to the often anxiety-inducing news about the challenges facing our planet. Students promoted hopeful and positive actions around climate change via a social media takeover of both Galway Atlantaquaria's and CÚRAM's platforms. **READ MORE**

THE CHALLENGE

Overcoming anxiety related to the challenges that our planet and oceans are facing.

THE BENEFITS

- Knowledge of natural biomaterials and marine resources
- Science communications skills

THE COMMUNITY

- 10-12 years old students
- Primary teacher
- CÚRAM public engagement officers
- Marine Institute education officer
- Galway Atlantaquaria education officers

THE LEARNING PRODUCTS

- Reports and artworks on ocean organisms
- Instagram and Facebook posts

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

3D BIOPRINTING AND PODCAST

THE INITIATOR

University of Galway Youth Academy (Enda O' Connell).

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

The SLE offered courses in MedTech subjects and collaborated with CÚRAM to create a course looking at cutting-edge 3D bioprinting. Students created 2- and 3D-printed items and made a podcast about their experience. Ultimately, the aim was to encourage teenagers to choose these subjects at the third level. **READ MORE**

THE CHALLENGE

Increasing medtech knowledge in teenagers, encouraging them to choose these subjects at third level education.

THE BENEFITS

- Understand 3D bioprinting
- Understand the use of 3D bioprinting in health research
- Learn how to communicate research to the general public

THE COMMUNITY

- 13-15 years old students
- University
- Museum
- Academic Research Centre

THE LEARNING PRODUCTS

- 2D paper models of organs labelled with viable and non-viable cells
- 3D designs created on computer or with toothpaste and hairgel
- Podcast scripts and recording

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

HOW EXERCISE IMPACTS THE CIRCULATORY SYSTEM

THE INITIATOR

Michelle Salter, Teacher of Junior Cycle Students in DEIS (Delivering Equality in Schools) school.

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

The SLE, created as part of CÚRAM's Teachers in Residence programme, aimed to encourage exercise amongst teenagers by enhancing their understanding of the circulatory system. A Secondary School partnered with CÚRAM to create a curriculum-linked project that supported Junior Cycle students in this DEIS School.

READ MORE

THE CHALLENGE

Encouraging exercise and awareness of life-saving skills amongst teenagers.

THE BENEFITS

- Improved knowledge of the circulatory system, Medtech science, biology, and sports science
- Life-saving skills such as taking the pulse or doing CPR

THE COMMUNITY

- Junior Cycle Students in DEIS school - 15 years old
- Explorium Sport & Science Centre
- CÚRAM Academic Research Centre

THE LEARNING PRODUCTS

- Sample worksheets that were used for labelling activities
- Google Doc Data Sets (resting heart rate and recovery heart rate)
- CPR Mannequin
- Tag the pulse game

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

ITALY

SLEs Implemented in Italy

1. Green Transition and Gender ★
2. Blue Mission: our See is our Health ★
3. Food Waste Reduction and Sustainable Behaviour ★
4. Food Waste Reduction and Sustainable Behaviour 2
5. Geo-Archeo: Geo-Localisation of Pilot Sites and Geo-Materials Useful in a Prehistoric-Protohistoric and Historical Context. Experimental Reproductions and Archeometric Analyses.
6. Nature and Art: Nature Drawing for the Development of Scientific Communication
7. Water and us
8. Everything has its Own Story
9. Garden care: a Space to Grow and Thrive
10. BYE – Build Your Einstein Telescope

For more information

Contact Laura Mentini at mentini@apre.it

★ *featured in this portfolio*

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

GREEN TRANSITION AND GENDER

THE INITIATOR

Essenia Uetp - University and Enterprise Training Partenership srl.

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE raised awareness on the importance of STEAM disciplines and their opportunities beyond gender, paying special attention to sustainability and green transition. The learners were guided to discover scientists (especially female ones) who have contributed to significant achievements in different STEAM areas. READ MORE

THE CHALLENGE

Addressing the persistent gender gap in STEAM education and careers, as well as the urgent need to promote sustainable lifestyles and ecological awareness.

THE BENEFITS

Improved knowledge of the importance of STEAM disciplines, employment prospects, beyond gender stereotypes, circular economy and environmental sustainability.

THE COMMUNITY

- Liceo “Regina Margherita" of Salerno - 16-year-old students
- University of Naples "L'Orientale"
- TALEA srl.
- Confindustria Salerno-Comitato Femminile
- Voglio un Mondo Pulito OdV

THE LEARNING PRODUCTS

- Booklet STEAM careers
- Digital booklet of science pioneers
- Educational game on 1st female doctor in Europe
- Digital booklet on eco-sustainable practices
- Artwork created from waste materials

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

BLUE MISSION: OUR SEA IS OUR HEALTH

THE INITIATOR

ISPRA - Institute for Environmental Protection and Research (T. Mezzetti, M. Pisapia, A. Rotini).

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE explored the sustainability of human activities in marine-coastal environments from a One Health perspective. Through creative activities, active learning and outdoor experiences, students developed new skills and created educational resources and artistic products on topics such as plastic marine litter, ecological beach, sustainable aquaculture. READ MORE

THE CHALLENGE

Fostering awareness of environmental challenges, understanding the impact of our daily actions, and changing our anthropocentric perspective.

THE BENEFITS

- Empowered students as active citizens in environmental protection
- Improved awareness of environmental challenges and the impact of our daily actions

THE COMMUNITY

- Guicciardini Comprehensive Institute - 16-18 years old students.
- ISPRA
- Coastal Nature Reserve of Torre Flavia
- 2025 “Festival delle Scienze” of Rome
- Roma Tre University

THE LEARNING PRODUCTS

- Role-playing games
- Story writing and script tabs
- Storyboards drawings
- Final short films, including shooting, editing and post-production

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

FOOD WASTE REDUCTION AND SUSTAINABLE BEHAVIOUR

THE INITIATOR

INAIL - National Institute for Insurance against Accidents at Work

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE aimed to deepen students' understanding of food waste, from ethical, economic, social, and technological perspectives. Through interactive lessons, laboratory activities, field activities, and a school trip to FAO, students were inspired and engaged to spread messages of sustainable development within their local communities. **READ MORE**

THE CHALLENGE

Building critical awareness on the causes of food waste and develop corrective actions.

THE BENEFITS

Increased awareness of the importance of STEAM disciplines, and employment prospects in the STEAM field, beyond gender stereotypes.

THE COMMUNITY

- ITA Garibaldi High School, Rome
- School Years Abroad
- INAIL
- Council for Agricultural Research & Analysis of Agricultural Economics
- The European Food Information Council
- Barilla Foundation
- UN FAO

THE LEARNING PRODUCTS

- Questionnaire on the perception of the use of NGT/TEA
- Video tutorial on Phytotoxicity Test
- Phytotoxicity laboratory
- Creation of a solidarity garden
- Recipe book with food waste

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

MALTA

SLEs Implemented in Malta

1. Luminous ★
2. The Plant Irrigation Experiment ★
3. Clear the Air: A Student-Led Climate Action Project ★
4. Math Camp: Our Heritage Through Maths
5. Thematic STEM Debate
6. Tween4STEAM Summer Camp
7. GLOBE Air Quality Campaign
8. Scientists in the Making
9. Animals 360

For more information

Contact Mario Muscat at mario.muscat.2@ilearn.edu.mt

★ *featured in this portfolio*

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

LUMINOUS

THE INITIATOR

Judith Smith

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE explored a scientific theme, namely 'light', through an artistic lens. Students created poems, recorded them at a professional studio, and passed them on to the choreographers, who, together with the students, created dance pieces for every poem. The end result was an event where science and arts were celebrated in an original fashion. **READ MORE**

THE CHALLENGE

- Addressing the misconception that science and art don't go well together.
- Changing the common idea that science is tough and boring.

THE BENEFITS

Opportunity to explore scientific themes in unusual ways and to express emotions through poetry and dance, learning that science and arts are not so distant.

THE COMMUNITY

- 10-13 years old students - St Nicholas College Rabat Middle School
- Moveo Dance Company

THE LEARNING PRODUCTS

- Poems
- Poems recordings
- Dance pieces

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

THE PLANT IRRIGATION EXPERIMENT

THE INITIATOR

Beverly Pace – Science (Primary Head of Department)

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE explored sustainable irrigation by comparing traditional drip systems with the innovative SLECI (Smart Low Energy Controlled Irrigation) technology. Students monitored plant growth and water usage, then analyzed the results. The project concluded with a cooking session using the harvested produce and a student-led presentation. **READ MORE**

THE CHALLENGE

- Addressing the issue of water availability when growing products
- Understanding and testing ways of producing a good product with less water consumption

THE BENEFITS

- Increased knowledge of plants' vital functions
- Exposure to agricultural technology and smart irrigation systems

THE COMMUNITY

- 9 years old students
- Class teacher
- EcoGozo
- DSVP – Primary Science

THE LEARNING PRODUCTS

- Data recording and visual documentation
- Broad beans and lettuce harvest

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

CLEAR THE AIR: A STUDENT-LED CLIMATE ACTION PROJECT

THE INITIATOR

Duncan Ciappara – Science Teacher at Handaq MS St Ignatius College

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE explored air pollution, combining experiments, gamification, and community collaboration to link local and global climate issues. The findings underlined the need for urgent local action, and students proposed practical solutions, highlighting the effectiveness of student-driven initiatives in addressing climate challenges. **READ MORE**

THE CHALLENGE

Raising awareness about climate change and air quality concerns, particularly given the school's location within an industrial zone.

THE BENEFITS

Increased knowledge of the link between local pollution, global warming mechanisms and health risks of pollutants.

THE COMMUNITY

- 11-12 years old students (Science Club and Thinking Club students)
- Health Directorate
- Hal Qormi Local Council
- RS Group/ CS Technologies
- Teachers

THE LEARNING PRODUCTS

- AirQuality Data sheets.
- Gameplay reflections, strategy notes, and group discussions.
- Experiments implementation and reflection.

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

NORWAY

SLEs Implemented in Norway

1. Internet of Things ★
2. Artificial Intelligence Solutions ★
3. Financial Education through Technology ★
4. Game Development
5. Enterprise and Workflow Automation
6. Artificial Intelligence Solutions
7. Traffic and Air Pollution
8. Design a Better Neighbourhood
9. Become a Sustainability Hero
10. Responsible AI and Welfare
11. Responsible AI for Inclusive Public Services

For more information

Contact Eleni Chatzidaki at eleni.chatzidaki@ntnu.no

★ *featured in this portfolio*

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

INTERNET OF THINGS

THE INITIATOR

Norwegian University of Science and Technology (NTNU)

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

The SLE focused on developing an accessible, open-source platform for IoT quality assurance, giving students hands-on experience in real real-world setting. Students created a web-based solution that allows users to set up and execute tests between mobile phones and IoT devices. This SLE provided students with practical insight into agile workflows, usability, and technical integration.

READ MORE

THE CHALLENGE

Developing an open-source, user-friendly platform that enables effective testing of interactions between IoT devices and mobile phones, reflecting real needs from an industry partner.

THE BENEFITS

Improved technical (full-stack web development, IoT device integration, etc.) and soft skills (problem-solving, critical thinking, etc.).

THE COMMUNITY

- 21-24 years old students
- Professors, teacher assistants
- IoT specialist - Industry Partner

THE LEARNING PRODUCTS

- MVP (Minimum Viable Product)
- Detailed final report
- Platform's user interface and designs
- Formal customer presentation

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

FINANCIAL EDUCATION THROUGH TECHNOLOGY

THE INITIATOR

Norwegian University of Science and Technology (NTNU)

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE challenged students to address an existing societal issue, children's financial literacy in an increasingly cashless society, through a real-world software engineering project. In collaboration with a company, the students designed and delivered a Minimum Viable Product (MVP) for a cross-platform mobile app aimed at children aged 9–12. **READ MORE**

THE CHALLENGE

With physical money disappearing in Norway, children are missing out on tangible financial learning. The challenge was to create a digital, safe, and engaging space where children could learn financial concepts under parents supervision.

THE BENEFITS

Students learned how to apply their theoretical knowledge in practice, developing user-centered design and development skills, and gaining insights into ethical, inclusive, and secure technology solutions for real-world use.

THE COMMUNITY

- 21-24 years old students
- Professors and Teaching Assistants
- Industry Professionals
- Parents and Children (end users)

THE LEARNING PRODUCTS

- Fully functional mobile app
- Comprehensive final report
- Final presentation

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

GAME DEVELOPMENT

THE INITIATOR

Norwegian University of Science and Technology (NTNU)

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE engaged 10th-grade students in an interactive and creative introduction to programming, using the Scratch platform to design and build their own digital games. Implemented within the Kodeløypa initiative, the learning activity emphasized hands-on learning, problem-solving, and collaboration. **READ MORE**

THE CHALLENGE

Make programming accessible and motivating for all learners, especially those with no prior experience and girls, who are often not actively encouraged in tech fields.

THE BENEFITS

By allowing students to shape their own game narratives and logic, the SLE promoted autonomy, inclusivity, collaboration and digital confidence within a supportive classroom environment.

THE COMMUNITY

- 15-16 years old students
- Teachers
- NTNU Kodeløypa program
- NTNU Teacher assistants (University students)
- NTNU Researchers

THE LEARNING PRODUCTS

Each group of students created a game using Scratch, integrating logic, interaction, and design elements.

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

PORTUGAL

SLEs Implemented in Portugal

1. Invisible Marine Pollution Pathway - From Land to Sea ★
2. Sustainable Fishing - From Land to Sea ★
3. Fish can also be Farmed - From Land to Sea ★
4. Ecosystem Services of the Aquifers - From Land to Sea
5. Bivalves also Go to Swimming Pool - From Land to Sea
6. What are Microalgae: Their diversity, Importance in Ecosystems, Application and Production? - From Land to Sea
7. Fish Feeding and Nutrition in Aquaculture - From Land to Sea
8. Lixarte: a Giant Wave to Save the Oceans - From Land to Sea
9. From the Invisible to the Visible Life in Water - From Land to Sea
10. Freshwater Challenge on a Sailing Boat - From Land to Sea
11. Protecting Marine Life - From Land to Sea

For more information

Contact Cristina Veiga-Pires at cvpires@ualg.pt

★ *featured in this portfolio*

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

INVISIBLE MARINE POLLUTION: FROM LAND TO SEA

THE INITIATOR

Patrícia Simões, teacher, Primary school EB1 Montenegro Nova - Faro
Vânia Serrão Sousa, Universidade do Algarve - UAlg

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

Students participated in a week-long STEAM educational program at the Centro Ciência Viva do Algarve. The experience featured activities aligned with the SDGs, including a session led by scientist Vânia Sousa from the University of Algarve, focusing on chemical and organic water pollution. The discussion highlighted the critical importance of protecting water quality. **READ MORE**

THE CHALLENGE

Take action for SDG 14 (Life Below Water) and explore how to preserve marine water quality by addressing pollution and sustainability issues throughout the entire water cycle.

THE BENEFITS

Raised students' awareness of the impact of their individual actions on the environment and climate.

THE COMMUNITY

- 9-10 years old students
- Municipality of Faro and Regional Seminary
- University (UAlg)
- Centro Ciência Viva do Algarve Association
- School and parents

THE LEARNING PRODUCTS

- Table with daily record of water parameters (temperature, pH, salinity, time and sea level height)
- Robot moved by solar or wind energy
- Mural: All together for a better world

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

SUSTAINABLE FISHING: FROM LAND TO SEA

THE INITIATOR

Ana Isa Gomes, teacher, Primary school EB1 Montenegro nº2– Faro
Pedro Lino, Instituto Português do Mar e da Atmosfera -IPMA

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

Students participated in a week-long STEAM educational program at the Centro Ciência Viva do Algarve. The experience featured activities aligned with the SDGs, including a session led by scientist Pedro Lino, which focused on sustainable fishing practices, emphasizing the importance of reducing waste and integrating both traditional and innovative fishing technologies. **READ MORE**

THE CHALLENGE

Increase awareness of sustainable fishing practices the importance of reducing waste, respecting fish life cycles, and balancing traditional and innovative fishing methods

THE BENEFITS

Raise students' awareness of the impact of their individual actions on the environment and climate.

THE COMMUNITY

- 9-10 years old students
- Municipality of Faro and Regional Seminary National authority (IPMA)
- Centro Ciência Viva Centro Ciência Viva do Algarve Association
- School and parents

THE LEARNING PRODUCTS

- Table with daily record of astronomic parameters
- Construction of a volcano
- Decoration of tissue with a leaf pattern
- Development of a game on sustainable fishing

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

FISH CAN ALSO BE FARMED: FROM LAND TO SEA

THE INITIATOR

Sílvio Patrício, teacher, Primary school EB1 Fonte Santa – Loulé
Florebela Soares, IPMA – Instituto Portugês do Mar e da Atmosfera

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

Students participated in a week-long STEAM program at the Centro Ciência Viva do Algarve. The experience featured activities aligned with the SDGs, including a session led by Florbela Soares, marine biologist from IPMA. She introduced the topic of aquaculture, explaining how fish are raised in controlled environments and why this method can provide a healthier, more sustainable source of food.

READ MORE

THE CHALLENGE

Explore aquaculture and investigate its role in promoting sustainable food systems and healthier marine environments.

THE BENEFITS

Raise students' awareness of the impact of their individual actions on the environment and climate.

THE COMMUNITY

- 9-10 years old students
- Municipality of Faro and Regional Seminary
- Centro Ciência Viva do Algarve Association
- Portuguese Institute of the Sea & Atmosphere (IPMA)
- School and parents

THE LEARNING PRODUCTS

- Poster AEIOU of Aquaculture, e.g. on its benefits
- Drawing of a marine organism with watercolour painting
- Impressions of animals remain in clay as fossils

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

ROMANIA

SLEs Implemented in Romania

1. Fuelling our Future: Healthy Food in a Sustainable Community ★
2. The Buzz of Learning: Beetropolis and the Quest to Save Nature ★
3. The City of the Future: Smart, Green and Sustainable
4. Page-Turners for Life
5. STEAMing Up 2 with Nature's Wonders
6. My Wonderful UNESCO Geopark

For more information

Contact Ioana Caraghiozov at ioana.caraghiozov@eun.org

★ *featured in this portfolio*

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

FUELLING OUR FUTURE: HEALTHY FOOD IN A SUSTAINABLE COMMUNITY

THE INITIATOR

Alina Marilena Buduleanu

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE aimed to enhance healthy food literacy among students, helping them understand the importance of nutrition and sustainability. Through learning-by-doing activities, guidance of nutritionists and food industry engineers, and intergenerational exchanges, students explored the benefits of traditional and healthy eating. **READ MORE**

THE CHALLENGE

Lack of knowledge in healthy food literacy which directly contributes to poor eating habits and a limited understanding of nutrition's impact on a sustainable lifestyle.

THE BENEFITS

Enhance students' healthy food literacy through collaborative learning, helping them to develop lifelong healthy eating habits.

THE COMMUNITY

- 8-9 years old students
- 2 engineers (Faculty of Food Science & Engineering)
- 2 nutritionists
- Retiree Association (10 elders)
- 2 local restaurants (Mansel & Natur)

THE LEARNING PRODUCTS

- Dietary habits survey
- Food preparation
- Healthy traditional eating posters
- Cookbook
- Healthy Food Fair to showcase the learning products

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

THE BUZZ OF LEARNING: BEETROPOLIS AND THE QUEST TO SAVE NATURE

THE INITIATOR

Ghenea Nicoleta Simona

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE focused on bees and their vital role in sustaining life on Earth. Students explored bees' anatomy, pollination, and environmental conservation through hands-on activities, digital technologies, museum learning, robotics, AI tools, and community partnerships. The project stood out by creating a model city, "Beetropolis", to physically and virtually support bees. **READ MORE**

THE CHALLENGE

The decline of pollinators threatens ecosystem balance, creating an urgent environmental crisis.

THE BENEFITS

Students became active agents of change and discovered that even the youngest citizens can suggest solutions to global problems.

THE COMMUNITY

- 6-7 years old students
- Beekeeper from county-Hercules, Beekeeping Association, Mehadia commune, Caraș-Severin county.
- Oltenia Museum-Natural Sciences section
- Local beekeeping shop-Apis
- Local community and parents
- Nature Protection Association

THE LEARNING PRODUCTS

- Beetropolis STEM Activity e-book
- Beetropolis exhibition
- Collaborative Posters
- E-book

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

SERBIA

SLEs Implemented in Serbia

1. Smart Recycling: from Plastic Bottle to 3D Printing ★
2. Paper with a Purpose: Recycling, Creativity, and Social Responsibility ★
3. STEM Expedition: The River is Not Just Water ★
4. Smart Growing: Controlled Plant Cultivation for a Sustainable Future
5. Sky heroes
6. Eco-Cycle: From Waste to Growth – A Local Green Initiative
7. My cup of tea
8. From Seed to Success
9. Radioactive Earth
10. Smart Oasis: Designing a Sustainable Student Lounge

For more information

Contact Katarina Stekić at kstekic@cpn.rs

★ *featured in this portfolio*

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

SMART RECYCLING: FROM PLASTIC BOTTLE TO 3D PRINTING

THE INITIATOR

Bojan Ćirić

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE addressed the challenge of recycling PET packaging through the development of an innovative device for processing plastic bottles into filaments for 3D printing. Students investigated environmental issues related to plastic waste and applied STEAM principles in developing a practical solution.

READ MORE

THE CHALLENGE

This project addresses the challenge of recycling PET plastic and its reuse through innovative technologies

THE BENEFITS

Students developed technical, engineering and analytical skills, while also gaining knowledge about the circular economy and sustainable technologies

THE COMMUNITY

- 16-19 years old students
- Regional landfill
- NGO "Osveženje

THE LEARNING PRODUCTS

- Prototype of a PET plastic recycling device.
- Recycled 3D printing filament and printed products
- 3D models and designs

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

PAPER WITH A PURPOSE: RECYCLING, CREATIVITY, AND SOCIAL RESPONSIBILITY

THE INITIATOR

Marija Veljković Milojković

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE was designed to address an everyday issue in the school environment: excessive paper waste. Students participated in workshops on paper recycling, crafted usable and decorative items from recycled paper, and applied entrepreneurial skills by organizing a charity fair for NURDOR foundation supporting children with cancer.

READ MORE

THE CHALLENGE

The core challenge addressed by this SLE was the large volume of unused and discarded paper generated within the school.

THE BENEFITS

The SLE raised awareness of environmental protection, cultivated empathy, responsibility, and creativity, all while reinforcing STEAM skills and linking formal education with real-world impact.

THE COMMUNITY

- 16-19 years old students
- The Faculty of Occupational Safety (Environmental Protection Department)
- NURDOR (National Association of Parents of Children with Cancer),

THE LEARNING PRODUCTS

Paper-based products (bookmarks, cards, and aromatic decorations).

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

STEM EXPEDITION: THE RIVER IS NOT JUST WATER

THE INITIATORS

Ana Radenković and Ana Jeremić, biology, microbiology & ecology teachers
Ana Cvetković, technology subjects teacher
Biljana Vukajlović, chemistry teacher

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE investigated the water quality of the Ibar River in the Kraljevo area through physical-chemical and microbiological analyses, and by studying the biodiversity of the aquatic ecosystem. The project involved collaboration between students, biology, chemistry, and microbiology teachers, and experts from relevant institutions. READ MORE

THE CHALLENGE

This SLE addressed the real-world problem of water pollution and the need to develop environmental awareness through student-led research and community engagement

THE BENEFITS

Students developed research skills, critical thinking, and environmental awareness while promoting science through practical and socially responsible work.

THE COMMUNITY

- 15- 18 years old students
- Biology, Chemistry, Microbiology Geography, IT Teachers
- Veterinary Specialist Institute in Kraljevo
- Public Health Institute
- Local Environmental Organizations

THE LEARNING PRODUCTS

- Results of laboratory analyses (chemical and microbiological testing of water),
- Digital map of the Ibar River
- River model
- Promotional material

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

SPAIN

SLEs Implemented in Spain

1. AI with a Sustainable Lens: Youth Films to Change the World ★
2. Innovation and Awareness: Producing an AI Video about an SDG ★
3. Creating videos with Artificial Intelligence inspired by the SDGs ★
4. Artificial Intelligence in the Service of the SDGs
5. Sustainable Development Goals: An Approach with ESO Students using AI Tools
6. Stories with Meaning: Imagining the Monster with AI and SDGs
7. From Classrooms to Action: SDGs with AI in STEAM Learning
8. Advancing SDGs Targets with AI
9. SDGs and AI: Towards a Sustainable Future
10. STEAM Learning Ecologies

For more information

Contact Patricia Barciela Duran at p.barciela@coruna.gal

★ *featured in this portfolio*

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

AI WITH A SUSTAINABLE LENS: YOUTH FILMS TO CHANGE THE WORLD

THE INITIATOR

Andrea Patiño Vázquez – IES Moncho Valcarce (As Pontes de García Rodríguez, A Coruña).

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

Using active, participatory methodologies, students worked in diverse teams to create short films focused on a Sustainable Development Goal (SDG). After brainstorming and manual storyboard sketching, each group used generative artificial intelligence tools to develop the script, visual frames, soundtrack, and final video editing.

READ MORE

THE CHALLENGE

Exploring the potential and limitations of generative AI tools, while fostering environmental awareness,.

THE BENEFITS

Students improved their AI literacy, critical thinking, environmental awareness, creativity, and teamwork skills.

THE COMMUNITY

- 15-16 years old students
- Domus Science Centre
- Digital Worlds Festival

THE LEARNING PRODUCTS

- Paper storyboards
- Example prompts
- Scripts for the short films
- Final images

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

INNOVATION & AWARENESS: PRODUCING AN AI VIDEO ABOUT SDGs

THE INITIATOR

Eva Leira Bouzamayor, IES Sofía Casanova (Ferrol, A Coruña, Spain).

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE proposed to 4th ESO (16-year-old) students the exploration of the potential of generative AI for content creation, focusing on producing a short video. The focus was on raising awareness of an SDG chosen by the groups. Students documented the process, reflecting on the use of AI, its possibilities and limitations, and presented the final result. **READ MORE**

THE CHALLENGE

Exploring the use of AI in a critical, creative, and ethical way and raising awareness about the SDG.

THE BENEFITS

Students developed digital and technological skills, as well as a critical awareness of the SDGs.

THE COMMUNITY

- 16-year-old students
- Domus
- Mundos Digitales

THE LEARNING PRODUCTS

- Database of text, image, and video-generative IAs
- Final video
- Presentation of the whole process

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

CREATING VIDEOS WITH AI INSPIRED BY SDGs

THE INITIATOR

Remedios Durán Pernas, Pablo VI- Fátima School

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

Students in 4th ESO and 1st Baccalaureate were asked to create videos generated entirely with artificial intelligence tools, based on the Sustainable Development Goals (SDGs). The students studied and chose the SDG they liked the most and designed a storyboard, created a video including at least six images generated by AI. **READ MORE**

THE CHALLENGE

Raising awareness of SDGs and critical knowledge of AI tools.

THE BENEFITS

This activity encourages creativity, digital literacy and critical reflection on global challenges.

THE COMMUNITY

- 14-16 years old students
- Domus Museum
- Digital Worlds Company

THE LEARNING PRODUCTS

- Storyboards.
- Final video
- Presentation of the whole process

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

ADDITIONAL COUNTRIES

SLEs Implemented in Israel

1. Air Pollution in the school area: Fiction or Reality? ★

SLEs Implemented in North Macedonia

1. My Health and Wellbeing through Data and Science ★

SLEs Implemented in Slovakia

1. WRAP: Materials and Alternative Packaging ★

SLEs Implemented in Sweden

1. Save Lake Malar ★

SLEs Implemented in Türkiye

1. Innovation Bridge: Future Technologies on the Trail of the Past ★

For more information

Contact Ioana Caraghiozov ioana.caraghiozov@eun.org

★ *featured in this portfolio*

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

AIR POLLUTION IN THE SCHOOL AREA: FICTION OR REALITY?

THE INITIATOR

Stella Magid Podolsky

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE examines air pollution in and around the students' school. Students conducted their own air quality assessment around the school, interviewed a pediatrician about air pollution's effects on adolescents' health, researched the issue with the help of AI tools, and presented their findings using posters and presentations. **READ MORE**

THE CHALLENGE

Find a solution to the conflicting findings about air quality: parent-led research indicated poor air quality, while the Municipality's official data claimed that air quality met government standards.

THE BENEFITS

- The project encouraged students to think critically and propose original solutions.
- Students learned how to tackle a real challenge, conducting solid scientific inquiry.

THE COMMUNITY

- 13-15 years-old students
- Dr. Faina Shknevsky - Pediatrician
- Dr. Kobbi Guterman an expert in education
- Representatives from Environnemental department (Tel aviv Municipality)

THE LEARNING PRODUCTS

- Data analysis
- Air quality measurements with IQAir app
- Posters and presentations

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

MY HEALTH AND WELLBEING THROUGH DATA AND SCIENCE

THE INITIATOR

Silvana Jakimovska Binova

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE explored how science and technology can help us take care of our health. Blending biology, math, physics, and digital tools, the journey began with a deep dive into real medical check-up reports and a visit to a preventive healthcare center. Students discovered how everyday choices and technology shape our physical and emotional well-being. READ MORE

THE CHALLENGE

Raising awareness about the importance of health and wellbeing in a world increasingly shaped by digital distractions and unhealthy habits.

THE BENEFITS

Empowered students, especially girls, to see themselves as future scientists and health innovators and to make informed decisions about their well-being.

THE COMMUNITY

- 12-14 years old students (Primary School Strasho Pindzur Karbinci, Secondary Medical School in Stip)
- Service for Preventive Health Care for Preschool and School Children
- Physical Therapy Department at Clinical Hospital in Stip

THE LEARNING PRODUCTS

- Health & Wellbeing Diary
- Measurements of health parameters
- Digital habits data collection and report
- Educational posters with key findings
- Final exhibition

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

WRAP: MATERIALS & ALTERNATIVE PACKAGING

THE INITIATOR

Gabriela Krížovská, Ing.

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE focused on renewable materials for everyday use, specifically wrapping material. Following a visit to a wrapping-making factory and observation of traditional bio-farm products, students designed and created their disposable wrapping material using renewable resources and incorporating their unique designs with the help of AI. **READ MORE**

THE CHALLENGE

Raising awareness about the environmental impact of traditional, often non-renewable, wrapping materials used in everyday products.

THE BENEFITS

- Understanding of the environmental impact of conventional wrapping.
- Learned design and prototyping skills to create renewable alternatives.

THE COMMUNITY

- 13 - 14 years old students
- Ekofarma Važec Eco Farm
- CHEMOSVIT sro company

THE LEARNING PRODUCTS

- Notes and sketches of traditional wrapping
- Renewable material data sheets
- Design sketches with AI of their new materials
- Prototype of their new material

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

SAVE LAKE MALAR

THE INITIATOR

Urmimala Banerjee

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE explored environmental obstacles that Lake Malar and the Baltic Sea face, developing consciousness about sustainability and sustainable choices. Students worked in-depth on water-based ecosystems, their changing dynamics, and the environmental impact of human activity, and devised preventive measures to preserve them. READ MORE

THE CHALLENGE

Raising awareness about the impact of human activity on the ecosystems, and devise preventive measures.

THE BENEFITS

- Increased knowledge of chemical processes related to water pollution and treatment
- Awareness of environmental and health impacts of contaminants.

THE COMMUNITY

- Students 13-15 years old
- Teachers
- Hands to Ocean NGO

THE LEARNING PRODUCTS

- Posters encouraging reflection on environmental choices.
- Worksheet and graphs on batteries being dumped in the lake.
- Tourism slogan for Cuyahoga river

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

INNOVATION BRIDGE: FUTURE TECHNOLOGIES ON THE TRAIL OF THE PAST

THE INITIATOR

Işılay Güneş Torun

Suggested familiarity with the Open Schooling approach:

Beginner — Advanced

IN A NUTSHELL

This SLE explored how historical innovations have shaped modern technology, inspiring students to merge this knowledge with contemporary tools to design innovative products. Through hands-on activities, students explored aviation, renewable energy, car and furniture-making processes, and they were challenged to devise the innovations of tomorrow. **READ MORE**

THE CHALLENGE

Inspiring students to explore innovation and technologies while fostering creativity and encouraging future possibilities in STEM fields

THE BENEFITS

- Increased knowledge of the importance of past technological advancements
- Increased creativity and critical thinking.

THE COMMUNITY

- 10-11 years old students from 17 schools
- Gökmen Space Aviation Training Centre, Bursa Innovation Centre, Bursa Anatolian Cars Museum
- Orhaniyespor Science & Chess Training Centre
- İnegol Municipality
- Cilek Furniture Factory, Ortakci Glass

THE LEARNING PRODUCTS

- Design and building of hoverboard, t-shirt, dream bed, paper aircrafts, robotic arms, solar ovens.
- Final exhibition.

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

OStogether

Open Schooling together

open-schooling-together

ostogether

www.steamecologies.eu

Funded by the European Union

Funded by the European Union's Horizon programme under grant agreement No 101094648. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.