

Deliverable 3.1

STEAM Project Anthology



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Abstract	This project compiles the STEAM projects developed during the implementation of the STEAM Innovation modules and mentoring programme in Greece, Italy, Cyprus and Matera. It is an important legacy of the project, showcasing the promising results fo the innovative STEAM approach proposed by the project.
Author(s)	Geuffer Garcia (NUCLIO), Priscila Doran (NUCLIO)
Contributor(s)	Menelaos Sotiriou (SV), Ifigenia Marda (SV), Vasilia Philippou (Inquiry Fuse), Annamaria Guarino (MateraHub)
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Executive summary

This document presents an Anthology of the projects developed by the students and teachers that participated in the implementation of the STEAM Innovation project in Greece, Italy, Cyprus and Portugal. It is meant to showcase the impact of the projects' approach and encourage its wider uptake across European Countries. It is directed to teachers, policy-makers, curriculum developers and all other stakeholders interested in the advancement of STEAM education in Europe.

The document begins with a brief introduction to the STEAM approach proposed by the STEAM Innovation project and a description of the purpose of the document. In chapter 2 the projects developed under the module "Learning STEAM through Making & Tinkering" are presented, along with an introduction about its implementation in Portugal by NUCLIO. In chapter 3 the projects developed under the module "Learning STEAM through Theatre" are presented, along with an introduction about its implementation in Greece, by Science View. Finally, chapter 3 presents the projects developed under the module "Learning STEAM through Music", along with an introduction about its implementation in Cyprus by Inquiry-Fuse and Italy by Materahub. The document finishes with a conclusion on the efficacy and impact of such STEAM approaches.

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1 Introduction

1.1 Purpose of the Anthology:

An anthology is a compiled collection of creative works developed under a common theme. Among its many purposes of an anthology, one is to facilitate access to a collection of works, promoting their dissemination and uptake. STEAM Innovation advocates for a more inclusive and updated education where students explore the importance of the Creative and Cultural aspects of human life to learn STEAM concepts. This anthology, therefore, is meant to spread awareness for the relevant outcomes of the project, inspiring the uptake of the proposed methodologies by other organisations and schools. Ultimately, the goal is to promote the integration of Arts and Culture into student-centered approaches, enhancing real-life hands-on learning and enhancing the development of key life competences in students.

1.2 Methodology Framework:

STEAM innovation focused on Learning STEAM with a special focus on the Arts and Culture. For this, partners designed a modular curriculum focusing on three approaches: 1. Learning STEAM through Theatre, coordinated and implemented in Greece by Science View; 2. Learning STEAM through Music, jointly coordinated and implemented by Inquiry-Fuse in Cyprus and by Materahub in Italy, and; 3. Learning STEAM through Making & Tinkering, coordinated and implemented in Portugal by NUCLIO.

These three modules were based on the Inquiry-Based Learning approach, encouraging students to come up with their own questions and lead their learning journey and followed the 4-phase Design Thinking framework: Feel, Imagine, Create and Share to develop tangible outputs.

The project was implemented across 43 schools from the partner countries, reaching 198 teachers and over 1525 students. During the implementation partners supported schools through an incubator approach which included professional development opportunities accompanied by a mentorship programme through which ongoing support was offered. The detailed methodological approach can be found in D2.2 while the modular curriculum is described in D2.3.

The projects here presented result from the implementation of the STEAM Innovation methodology and modular curriculum approach.

2 Learning STEAM through Making&Tinkering (T3.1)

2.1 The Portugal Experience (NUCLIO)

The “Learning STEAM through Making & Tinkering” module, which is described in D2.3, was developed by NUCLIO and implemented across 11 Portuguese schools. During the 2025-26 school year, 56 teachers from the North and Center of the country engaged in an accredited professional development course related to Making & Tinkering in STEAM education. In this course they learned about innovative pedagogical approaches related to STEAM education and inclusive assessment practices and explored the different lesson plans of the module. These were related to “electronics and programming”, “3D modelling and printing”, and “Setting up web studios and editing sound and video”. Although the sessions related to the pedagogical framework were a blend of theory and practice, all other sessions promoted a fully hands-on approach.

The STEAM Innovation professional development course was accompanied by a mentorship programme through which teachers and students received personalized support throughout the development of their projects. As a result of this approach, over 580 students from Primary to Secondary education participated in the development of the STEAM Innovation projects presented here.

It is worth mentioning that in 2024-25 the Portuguese Ministry of Education offered to all school clusters digital innovation toolkits consisting of 3D printers, electronics and programming kits, web studios, among others. STEAM Innovation, being fully aligned with this initiative, consisted of an important opportunity for the schools to receive the necessary training and support to embed such equipment in their regular classes. In this sense, NUCLIO also supported the setting-up of the Digital Education Laboratories (LED) in several schools.

As a result of this approach, several student-led initiatives emerged, resulting in a rich diversity of prototypes demonstrating practical applications to promote issues such as sustainability, circular economy and well-being.

In this document the projects that were developed by the STEAM innovation teachers and students are showcased, as well as projects developed by schools from Oeiras Municipality which received a less structured support from NUCLIO, but followed a similar STEAM approach. These schools participated in the national festival and, with support from the Municipality, will be showcased in the international STEAM Innovation festival as well.

2.2 Project Showcase

2.2.1 "Biomass Vivos" by Agrupamento de Escolas Conde de Oeiras

Nº of involved teachers: 2

Class: 7ºA, 7ºB, 7ºC and 7ºD

Nº of involved students: 90

Different roles taken by students within the project: Students took on active, collaborative roles as researchers, creators, and designers. Working in groups of four, they acted as literary analysts and geographers to research ecosystems and map travel routes. They also served as visual artists and technical designers to sketch flora and fauna, and finally worked as digital modelers and developers by prototyping in Tinkercad, programming micro:bits, and constructing the physical game board.

Objective

The main objective is to promote meaningful learning through the articulation between different areas of knowledge, integrating science, literature, art, and technology. Starting from the book "O Cavaleiro da Dinamarca" by Sophia de Mello Breyner Andresen, students are challenged to explore terrestrial biomes, establishing connections between the studied contents and real contexts. The project aims to integrate the knowledge, skills, and methodologies of various subjects, challenge students to establish relationships, think critically, apply what they learn in diverse contexts close to reality, and understand the planet's ecosystem diversity, its characteristics, and the importance of its preservation.

Why the Project is Innovative

The project is innovative because it places students at the center of the learning process as researchers and creators using active and collaborative pedagogical methodologies, breaking away from traditional passive learning. It stands out by integrating several distinct disciplines around a real and cultural narrative, combining scientific knowledge with digital technology and artistic expression. From a maker perspective, it transforms complex theoretical information into a tangible, interactive pedagogical resource. Additionally, the project uses gamification through a "mission map" strategy and applies low-cost physical computing (micro:bit) to provide immediate feedback on learning, allowing students to experience trial, error, and continuous improvement in a practical way.

Project Description

An interdisciplinary and interactive educational game that represents landscapes of different terrestrial biomes, such as the Equatorial Forest, Savanna, Steppe, Desert, Mediterranean Forest, Deciduous Forest, Coniferous Forest, and Tundra. Inspired by the book "O Cavaleiro da Dinamarca", the game allows students to explore the environments through which the character travels, linking literature, geography, art, and technology. The game consists of a physical longitudinal board with holes and three-dimensional pieces modeled in Tinkercad and printed in 3D representing the fauna and flora of each biome. The pieces are designed to fit correctly only into their corresponding biome on the board. To provide an interactive experience, the validation of the answers is fully automated through a programmed micro:bit system and an indicator light that confirms if the piece was placed correctly. The project was implemented with four 7th-grade classes, involving a total of 90 students and bridging the subjects of Portuguese, Geography, Mathematics, Visual Education, Visual Communication, and ICT.

Communication channels and communication methods used.

The project is shared and presented directly to the class and the educational community, including other classes, teachers, and families, through the demonstration of the final game, active interaction with the public, and the reading of narrative cards linked to the game. Supporting materials created or planned for dissemination include informative posters, small videos, and digital presentations. The moments of sharing and gameplay are also documented and recorded through photographs and videos.

Are the results open source? If so, under which license?

Not specified.

Photos / Media Links



2.2.2 "Menos ruído, mais sabor" by EB António Rebelo de Andrade

Nº of involved teachers: 3

Class: 2nd, 3rd, 4th grades

Nº of involved students: 69

Different roles taken by students within the project: Students in the 2nd, 3rd, and 4th grades took on active, collaborative roles as authors and agents of change. They acted as democratic participants in class assemblies to identify the noise problem and as researchers investigating sound and noise pollution during a cafeteria visit. Working in specialized teams, they served as statistical researchers collecting and charting noise data; technological developers building algorithms and programming the micro:bit; physical builders assembling the circuits; and visual designers creating awareness posters and signage.

Objective

To raise awareness among primary students about the importance of a calm environment during meals, promoting well-being, coexistence, and citizenship habits.

Why the Project is Innovative

The project is innovative because it combines simple technology with daily school behavior, making learning meaningful and close to the students' reality. It places 1st CEB students (2nd, 3rd, and 4th grades) at the forefront as authors and active citizens who solve real community problems rather than

being passive learners. It integrates a STEAM approach at an early age by combining visual art, statistics, and physical computing, using a micro:bit and a LED strip as a real-time visual feedback tool that fosters immediate student self-regulation and behavioral autonomy in a shared school environment.

Project Description

A project that integrates learning from Portuguese, Mathematics, Environmental Studies (Estudo do Meio), Artistic Education, Citizenship and Development, and ICT. The project was born from a common problem identified in class assemblies, where students expressed difficulties related to excessive noise in the school cafeteria. The developed solution consists of a micro:bit connected to a noise sensor and a LED strip. When the collective speech volume increases, the LED strip gradually changes color (green, yellow, and red), functioning as a visual signal for students to moderate their tone of voice. In Environmental Studies, students explore rules of coexistence, health, and well-being; in Mathematics, they work on data collection and statistical research regarding noise levels; in Portuguese, they develop oral and written communication by explaining procedures and keeping project diaries; in Artistic Education, they design all the visual signage; and in ICT, they contact basic visual programming and simple circuits. The materials, technologies, and/or tools used were micro:bit units, noise sensors, LED strips, connection cables, batteries, computers or tablets with visual block programming software (MakeCode), project diaries, digital tablets for research, decibel-measuring applications, cardboard, drawing materials, and construction tools (scissors, glue, etc.).

Communication channels and communication methods used.

The project uses oral presentations to explain the device's operation, explanatory signage, and awareness posters spread throughout the school space. Explanatory videos detailing the development and functioning of the project are also used, ensuring that media sharing respects privacy and data security. The project will be shared directly with families and caregivers on Family Day (May 19th, 2026), and the dynamic teachers intend to share this experience with all the teachers of the school cluster during the Sharing Day (Dia de Partilhas) at the end of the school year.

Are the results open source? If so, under which license?

No.

Photos / Media Links



2.2.3 “Eletricidade On!” by ES Braamcamp Freire/EB Pontinha e EB de São Bruno

Nº of involved teachers: 2

Class: 9th, 6th and 5th grades

Nº of involved students: 47

Different roles taken by students within the project: The project combined 9th-grade Physics-Chemistry classes with 5th/6th-grade Science Club students, where older club monitors initially took on leadership roles. Working in preference-based collaborative teams, students acted as scientific researchers, programmers, builders, and developers. Specialized groups focused on bicycle disassembly and motor fixation, assembling the voltage rectifier circuit, mounting the magnetic loop-counter sensors, programming the micro:bit counter, and setting up the voltage tester. Students served as visual designers and geographers for the world energy map poster, and as oral presenters.

Objective

To acquire skills related to electrical circuits, electrical and electronic components, and 3D printing; to recognize that electrical energy can be obtained by transforming different types of energy; and to become aware of the articulation between Science and Technology in solving daily life problems. The main objective of the interdisciplinary project is to promote meaningful learning through the articulation between different areas of knowledge, integrating science, literature, art, and technology, specifically allowing students to produce electrical energy so they can, for example, charge their mobile phones in case of grid failures.

Why the Project is Innovative

The project is innovative because it applies an active STEAM and Maker learning approach where students solve practical community problems, such as grid blackouts, by building their own alternative green energy sources. It stands out by combining low-cost physical computing (micro:bit) with physical education equipment (bicycles), turning exercise into a functional energy-generating resource for the community. It incorporates cross-school collaboration (9th grade working with 5th and 6th grades

from two different schools) and links distinct disciplines like physics, electronics, geography, visual arts, and English. It promotes true technological innovation through trial and error, leading students to research and adapt a basic direct current design into an alternating current rectifier circuit using code-correction factors and 3D-printed protection boxes.

Project Description

An interdisciplinary project developed in collaboration between ES Braamcamp Freire/EB Pontinha and EB de São Bruno, involving 47 students from the 5th, 6th, and 9th grades, bridging Physics-Chemistry, Citizenship and Development, Natural Sciences, Geography, Visual Education, and English. The project focuses on electrical circuits (construction, representation, receptor associations, voltage, current, and resistance) and energy production. In the solar energy module, students used photovoltaic cells connected to a motor and fan, concluding that artificial incandescent light of 60W or perpendicular alignment was needed. In the chemical energy module, they built bio-batteries using lemons, apples, potatoes, bananas, pears, tomatoes, and onions, measuring voltage with micro:bit voltmeters and lighting up LEDs, concluding that lemons generate the highest voltage. In the kinetic wind energy module, they used a fan connected to a laboratory motor to run a blowing contest, reaching a maximum voltage of 1819 mV. In the kinetic bicycle energy module, they set up post prototypes on physical education bicycles. Using an alternator dynamo, they researched and built a current rectifier circuit on a breadboard using 4 diodes (1N4007), a 150 uF capacitor, a 7805 voltage regulator, a female USB A port, and wires, protecting it with a 3D-printed box to charge phones or power a radio. In the DC motor bicycle prototype, they programmed a micro:bit with a magnetic sensor (reed switch) and magnets on the wheel to count bicycle loops, using a 50ms pause delay. The materials used were solar kits, fruits, micro:bit units, breadboards, diodes, capacitors, voltage regulators, USB ports, wires, soldering tools, 3D printers, magnets, reed switches, computers, and visual block programming software (MakeCode).

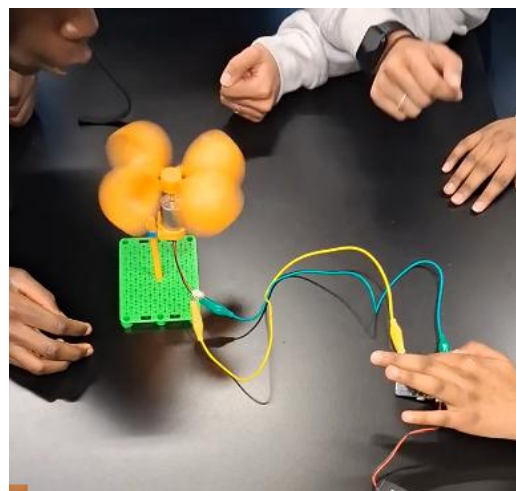
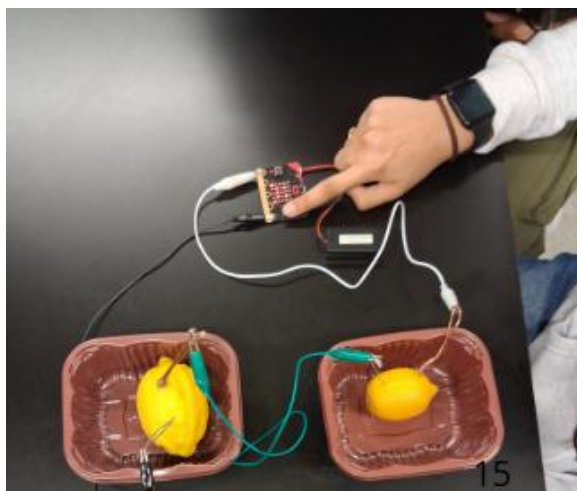
Communication channels and communication methods used.

An online meeting between the students of Escola Braamcamp Freire and Escola de São Bruno. Dissemination in the school newspaper and on social media, including an article published in a major digital press channel (Público True). Implementation of activities and oral presentations given directly to the remaining 9th-grade classes, as well as interactive activities open to the entire school community during the School Cluster Week (Semana do Agrupamento). The project is also scheduled to be presented to the public at the Researcher's Night (Noite do Investigador). Additionally, the project includes oral presentations delivered in English regarding electricity production history and global energy maps.

Are the results open source? If so, under which license?

N/A

Photos / Media Links



2.2.4 “Eletromagnetiza-te: Da Sala LED ao Mundo Real” by Agrupamento de Escolas de Pinhel

Nº of involved teachers: 4

Class: Mathematics (5th and 9th grade), Physical Chemistry (9th grade), Citizenship and Development (9th grade), and Physics and Chemistry A (10th and 11th grade)

Nº of involved students: 45

Different roles taken by students within the project: The project created a vertical mentoring ecosystem with hands-on roles across grades. The 5th graders experiment on the workbench with simple circuits and magnetic levitation. The 9th graders work as technicians winding coils for electromagnets and recycling e-waste (WEEE). Secondary students (10th/11th grades) serve as workshop specialists and mentors, building functional electric motors and replicating Hertz's and Faraday's experiments. Across all levels, students also act as media analysts, brainstormers, 3D printing operators, and presenters.

Objective

To understand reality, the problem, and the people involved; to generate ideas to solve the identified problem; to build and test concrete solutions; and to communicate results and generate social impact. Specifically, the project aims to address real concerns regarding the impacts of electromagnetism (from 5G to daily communications) by testing theory practically through a mentoring ecosystem, rescuing manual agility, mastering tools, and demystifying myths and false information associated with electromagnetic waves.

Why the Project is Innovative

The project is innovative because it establishes a tangible vertical mentoring ecosystem that links 2nd Cycle students to Upper Secondary Education, allowing older students to guide younger peers in hands-on work. It breaks away from traditional passive education by introducing an active Maker and trial-and-error methodology where theory is tested directly with the students' fingertips in a specialized environment (Sala LED / CCVnE). It is innovative because it connects advanced physics concepts with media literacy (using real news and fact-checks to combat scientific disinformation) and

integrates the ethics of the circular economy and sustainability through the physical salvage and disassembly of local electronic waste.

Project Description

An interdisciplinary project developed during the 2025/2026 school year with 45 students, bridging Mathematics (5th and 9th grades), Physics-Chemistry (9th grade), Citizenship and Development (9th grade), and Physics and Chemistry A (10th and 11th grades). Born from concerns about electromagnetism and 5G, the project follows a construction cycle divided by educational levels. The 5th graders explore simple circuits, magnetic cars, and magnetic levitation. The 9th graders build electromagnets by winding coils, recreate Oersted's Experiment, and recover electronic components from waste. The secondary students act as workshop specialists to build functional motors and recreate Faraday's and Hertz's experiments, utilizing 3D printers to manufacture precise phone stands and using the Phyphox app for experimental measurements. The assessment is conducted using specific rubrics from the ASSESS project, evaluating scientific correctness, problem-solving, project management, critical thinking, and team collaboration. The materials and tools used include compasses, wires, batteries, neodymium magnets, coils, copper wire, LEDs, 3D printers, smartphones, the Phyphox application, wood-cutting tools, whiteboards, computers, and WEEE (Waste Electrical and Electronic Equipment) collected from the local community.

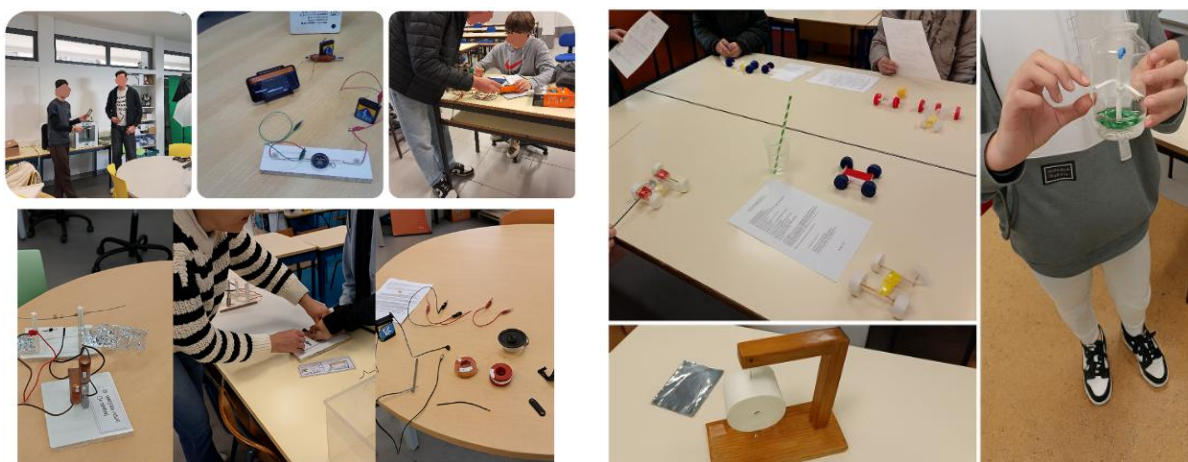
Communication channels and communication methods used.

The production of a final video titled "Eletromagnetiza-te" shared internally, and live demonstrations carried out directly by the students at the Sala LED/CCVnE. The project utilizes oral and multimodal communication methods, where students showcase their finalized prototypes and kits, deliver scientific explanations, and participate in a final reflection debate to demystify electromagnetic wave myths. The dissemination also utilizes the school's official social media channels and involves direct interaction with the school library, school cluster community, parents, and local citizens who participated in the e-waste collection.

Are the results open source? If so, under which license?

N/A

Photos / Media Links



2.2.5 “Smart City” by Agrupamento de Escolas Conde de Oeiras

Nº of involved teachers: 2

Class: Living Science Club at School

Nº of involved students: 6

Different roles taken by students within the project: The students were equally divided into two groups: Group 1 - 3D Modelling and Printing, Programming; Group 2: Arts, construction and planning.

Objective

To create a prototype for more sustainable and ecological spaces, buildings, and transportation.

Why the Project is Innovative

It is innovative because it involves students in all phases of the project and in decision-making. It puts students on the front line in problem-solving, making them critical, reflective citizens with a spirit of action and change.

Project Description

A scale model with proposals for future spaces, constructions, and transport. The project aims to create solutions to problems in the country and the locality identified by the students during a brainstorming session with the Club's students, namely water scarcity, pollution, and deforestation (wildfires). The idealized solution for this model includes transport exclusively with public vehicles and without the use of fossil fuels (line-following bus), a sustainable house with its own energy (wind, solar) and rainwater harvesting, light activation by sound, a vegetable garden with automatic irrigation from rainwater harvesting, and an increase in green spaces with native vegetation. The materials, technologies, and/or tools used were programming, 3D printing, electronics components, painting, cardboard modeling and waste materials, construction tools (screwdriver, hole punch, pliers, etc.), and welding.

Communication channels and communication methods used.

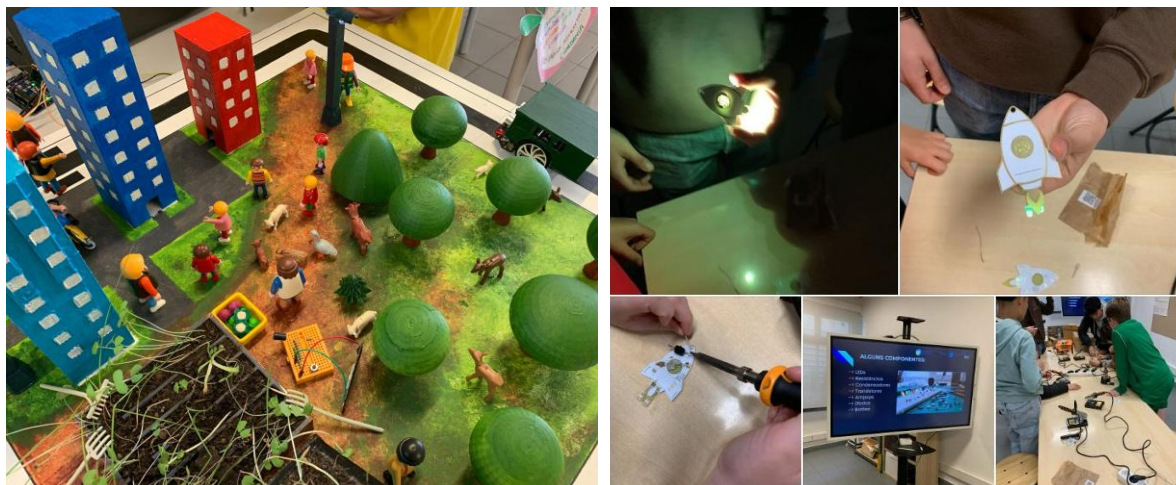
Poster



Are the results open source? If so, under which license?

N/A

Photos / Media Links



2.2.6 “Geo Explorers of Sustainability” by Agrupamento de Escolas Daniel Sampaio and Agrupamento de Escolas Carlos Gargaté

Nº of involved teachers: 2

Class: 2ªA (11º year) and 7ªA

Nº of involved students: 46

Different roles taken by students within the project: The students were divided into two groups: Group 1 - activity facilitators, Group 2 - Programmers of tangible objects (mbot2 robots).

Objective

Through defined paths for robots, the aim is to infer and conclude, based on measurements of environmental conditions, about the sustainability of life on Earth.

Why the Project is Innovative

This project involves students from different schools, vertically, and combines disciplinary content from different curricular areas, highlighting the promotion of skills included in the PASEO. The application of the Design-Thinking methodology with other project work methodologies, particularly the JIGSAW collaborative technique, provided holistic dynamics regarding the learning process.

Project Description

A mat-based path game for mbot2 robots with sensory measurement activities and a thematic quiz. The technologies, materials, and tools used were Python and block programming for mbot2, plastic expression, and 3D printing.

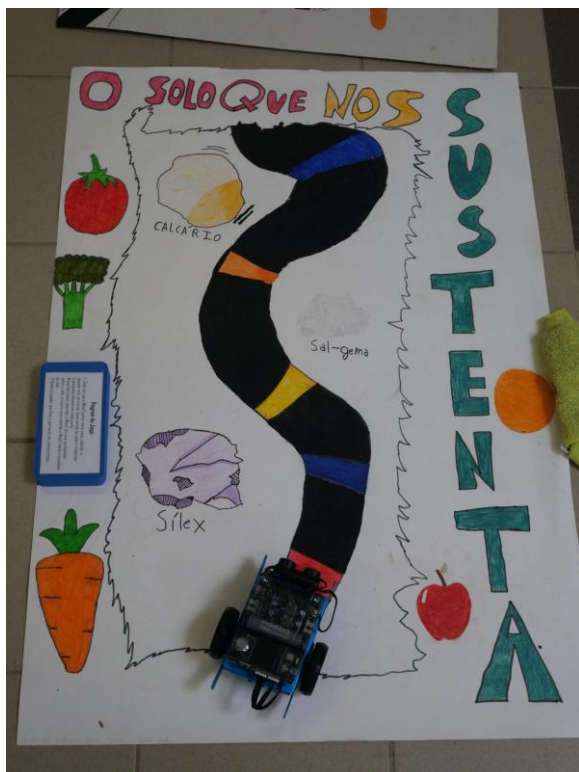
Communication channels and communication methods used.

Dissemination through videos, the websites of the involved School Clusters, social media, and an end-of-year seminar.

Are the results open source? If so, under which license?

Yes. CC BY-NC-SA 4.0 - Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International license.

Photos / Media Links



2.2.7 “Calçada dos Planetas” by Escola Secundária de Figueira de Castelo Rodrigo

Nº of involved teachers: 5

Class: 10ª A

Nº of involved students: 48

Different roles taken by students within the project: Change Makers & Peer Mentors; Planners & Researchers; Visual Designers & Multimedia Creators; Programmers & Maker Builders; Field Educators & Onsite Tutors.

Objective

To tackle the systematic difficulty students face when trying to visualize abstract astronomical distances, orbital movements, and scale relationships by transforming a public space into an outdoor classroom and a "living laboratory." The project explicitly aims to use direct experience, bodily movement, peer mentoring, and maker methodologies to make science accessible and concrete. By building an interactive, large-scale model of the Solar System, the initiative seeks to bridge the gap between theoretical textbook content and physical reality, while strengthening vital connections between the school, the local community, and the territory through active citizenship. .

Why the Project is Innovative

The project is innovative because it breaks the traditional boundaries of the classroom, turning a public square (Largo Mateus de Castro) into an expanded, open-air learning environment that merges science, physical movement, play, and community intervention. It seamlessly combines advanced STEAM and Maker tools (such as Micro:bit orbit counters, ambient data logging, and Makey Makey pressure circuits) with a cross-cycle vertical mentoring structure where secondary students teach primary school children. The project innovation is proven by its ability to make "invisible science" tangible to the general public, converting a standard school assignment into a highly visible, reproducible civic asset that was selected and validated at an international educational innovation forum like the STEAM Innovation event.

Project Description

"Calçada dos Planetas" is an interdisciplinary and collaborative STEAM project involving 11 secondary student mentors (10th grade) from Agrupamento de Escolas de Figueira de Castelo Rodrigo and 34 primary school explorers (4th grade) from both AEFCR and AE Afonso de Albuquerque (EB1 Lameirinhas). Following the Design Thinking cycle, the project maps out a physical 30-meter human scale model of the Solar System where 1 meter equals 1 Astronomical Unit (1 AU). The project vertically integrates a massive array of curricular subjects: Mathematics (proportionality, conversions), Físico-Química and Ciências Naturais (planetary traits, solar energy), Biologia e Geologia (habitability conditions, planetary volcanism), Educação Física (motor skills and coordination), and Programming/Maker Culture (Micro:bit data logging, Makey Makey aluminum foil victory pads). Continuous and formative assessment is rigorously mapped using the ASSESS project framework, utilizing direct observation grids, group logbooks, peer-feedback rubrics, and self/co-evaluation matrices to measure both core content and transversal skills like critical thinking, project management, and global citizenship.

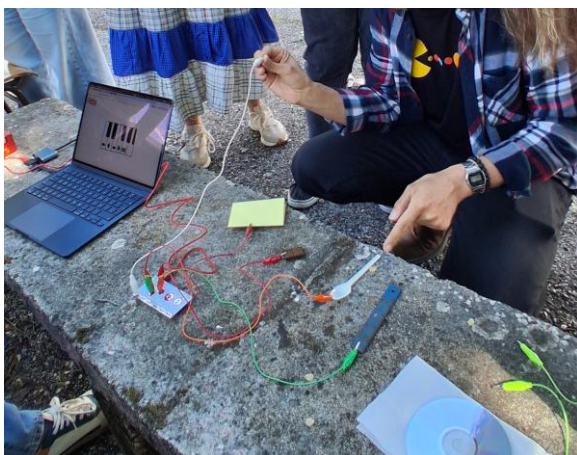
Communication channels and communication methods used.

The project incorporates a diverse mix of physical, digital, and interpersonal communication channels. Internally, communication relied on classroom debates, peer feedback, and script writing. On the field, communication was physical and oral, featuring direct peer-to-peer tutoring and physical motor challenges where language was carefully adapted for younger audiences. The digital communication system uses physical stencils, signs, and QR codes integrated directly into the street pavement, linking the physical walkway to online educational videos hosted on YouTube. For wider community dissemination, the project utilized custom-designed game cards, printed posters in the town, institutional social media networks, and an official presentation at the international STEAM Innovation event to share pedagogical practices with the broader educational community.

Are the results open source? If so, under which license?

N/A

Photos / Media Links



2.2.8 “Atuar com Cidadania” by Escola Secundária de Figueira de Castelo Rodrigo

Nº of involved teachers: 4

Class: 8ºC, 9ºB.

Nº of involved students: 30

Different roles taken by students within the project: Operating in pairs, students took on active, hands-on roles across all project phases. They acted as researchers and as scriptwriters and designers structuring video scripts. They worked as multimedia operators and editors and served as investigative interviewers of community agents, as well as presenters and active citizens.

Objective

To identify a real problem that worries the students, specifically the impact of storms and climate change on the community, and place it at the center of an inquiry process that mobilizes a "maker spirit" (create, test, improve) to contribute to its resolution or to community awareness. The project explicitly aims to help students investigate, understand, and act upon the connections between this central problem and the essential learning goals of multiple school subjects, directly linking their daily lives to core citizenship domains like Human Rights, Democracy, Political Institutions, Sustainable Development, Financial Literacy, and Entrepreneurship.

Why the Project is Innovative

The project is innovative because it integrates a hands-on maker and media-creation methodology directly into the theoretical curriculum of Citizenship and Development, breaking away from traditional passive learning. It creates a highly technical and modern interdisciplinary learning ecosystem where students do not just study local climate emergencies abstractly, but dynamically use a specialized physical environment (the LED Studio) and professional tools (OBS Studio, CapCut, Canva Pro) to synthesize and broadcast solutions. The project is innovative due to its vertical and community-connected approach, integrating external real-world testimonies from local emergency services and authorities, and utilizing official institutional social networks to transform school assignments into direct tools for civic action and community-wide reflection.

Project Description

An interdisciplinary project developed during the 2025/2026 school year with 30 students from the 8th Grade (8th C) and 9th Grade (9th B) at Agrupamento de Escolas de Figueira de Castelo Rodrigo, articulating TIC, Cidadania e Desenvolvimento, Educação Física, and Ciências Naturais around the real-world impact of storms and climate change. Following the Feel-Imagine-Create-Share cycle, students work in pairs to investigate an assigned citizenship theme, producing a foundational theoretical document in Google Docs. In Ciências Naturais, they explore the scientific basis of ecosystems and sustainability; in Educação Física, they participate in role-play and team dynamics to foster cooperation during crisis situations; and in TIC, they design scripts in Canva Pro, configure capture equipment in the school's LED Studio using OBS Studio, and edit short awareness videos via CapCut. The assessment planning is adapted from the ASSESS project framework, utilizing numerical rubrics (1 to 5), direct observation grids, checklists for scientific correctness, and self/hetero-evaluation tools to measure both curricular content and cross-curricular competences like critical thinking, collaboration, and active citizenship. The resources used include computers, smartphones, the internet, Canva Pro virtual classrooms, LED Studio equipment, OBS Studio, and CapCut.

Communication channels and communication methods used.

The project utilizes both internal oral and external digital communication methods, beginning with preliminary classroom presentations and peer-led debates to test and refine scripts based on collective feedback. The final short awareness videos are intended to be shared and disseminated through the Agrupamento's official institutional social media channels. This digital communication method is designed to actively engage a wider public audience, including the school community, parents, legal guardians, and digital followers, while cultivating a conscious, structured, and ethically responsible approach to online broadcasting.

Are the results open source? If so, under which license?

N/A

Photos / Media Links

N/A

2.2.9 “A Bússola da Carteira “ by Escola Secundária de Figueira de Castelo Rodrigo

Nº of involved teachers: 6

Class: Students from the Financial Education Club

Nº of involved students: 5

Different roles taken by students within the project: Each participant will build a smart safe and will star in a financial education video.

Objective

The project A Bússola da Carteira aims to promote financial literacy in a practical, critical, and applied way, empowering 7th and 8th-grade students to understand, manage, and communicate essential money management concepts through the creation of an educational audiovisual program and the development of a smart safe using digital technologies. It is intended that students stop being just receivers of knowledge to assume the role of creators, communicators, and problem solvers, while simultaneously developing skills of autonomy, critical thinking, creativity, digital literacy, collaboration,

and financial responsibility. By involving families and the educational community, the project also aims to foster a culture of more conscious financial decisions, promoting intergenerational dialogue and contributing to the formation of citizens who are better prepared to manage resources, avoid risks, and plan the future in a sustainable way.

Why the Project is Innovative

This project is innovative because it integrates financial literacy, digital technology, 3D printing, and audiovisual production into an active, interdisciplinary learning process with community impact. Students step away from being consumers of knowledge to become creators, programmers, and communicators, developing essential technical, financial, and social skills for the 21st century.

Project Description

A smart safe and an audiovisual episode titled "Does my allowance have a compass?". The project addressed the problem that many students and families do not have planning and saving habits and find it difficult to control expenses, which was identified through conversations about daily consumption habits, what happens to the allowance, and a mini-survey with classmates and parents. The materials, technologies, and tools used were programming, micro:bit, 3D printing, and audiovisual equipment.

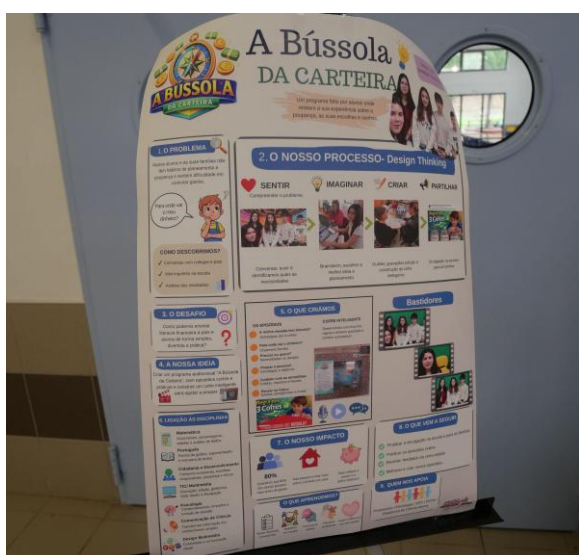
Communication channels and communication methods used.

The project will be shared through presentations at school, digital dissemination via website and social media, the involvement of families and local partners, as well as the availability of a replicable kit with scripts, smart safe instructions, and pedagogical resources, allowing other schools to implement the initiative.

Are the results open source? If so, under which license?

Yes, the results are open source under Creative Commons licenses, specifically CC-BY 4.0, CC BY-SA 4.0, and CC BY-ND 4.0.

Photos / Media Links



<https://www.facebook.com/watch/?v=803170349219369>

<https://www.instagram.com/reels/DXrGEWsD-7d/>

2.2.10 “Revestir o Futuro” by Escola Secundária de Figueira de Castelo Rodrigo

Nº of involved teachers: 6

Class: 9º B

Nº of involved students: 16

Different roles taken by students within the project: The students were divided into groups, with different tasks: Group 1: Logo design, posters and promotional materials; Group 2: Stylists, dressmakers and models; Group 3: 3D printing; Group 4: Cameras and image editing; Group 5: Presenters; Group 6: Soundtrack.

Objective

To promote sustainable habits in the community, namely in terms of consumption. To experience the process of upcycling clothes that we no longer use. To use technology in the learning process and in solving challenges. To stimulate collaborative problem solving.

Why the Project is Innovative

It is innovative because it brings students closer to the model of an autonomous person, capable of sewing their own clothes, which can be replicated in other areas such as autonomy in food production, etc. It is also innovative because it uses various technologies and because there is the creation of a prototype. It is innovative because it involves the artistic part of the fashion show in the dissemination of the project, during an official community party. Finally, it is innovative because it associates entrepreneurship with sustainability.

Project Description

Each student looked for a piece of clothing they would like to remodel, seeking to create new, versatile items to be used in different situations. In a second phase, a prototype (still to be decided) of an item that transforms into another will be created, such as a jacket that transforms into a backpack/bag or a scarf that converts into a jacket using buttons and snaps created in 3D modeling followed by printing. The project addressed the question of what destination is given to waste and leftovers from the fashion industry, a problem experienced by the class and later reinforced with research. The technologies, materials, and tools used were sewing machines, 3D printing of buttons, video camera, microphones, mixing console, PC, screen, and image editing application.

Communication channels and communication methods used.

Realization of a fashion show for the entire community, included in the official program of the Almond Blossom Festival (Festas da Flor da Amendoeira), held annually in Figueira de Castelo Rodrigo. Elaborating a video with all the stages of the process. Repeating the fashion show at the school with a live broadcast on social media.

Are the results open source? If so, under which license?

The results are open source. Other people can use and adapt the project freely.

Photos / Media Links



2.2.11 “Onde a Tecnologia Faz Crescer o Verde” by Agrupamento de Escolas de Pinhel

Nº of involved teachers: 4

Class: 11ºE; 12ºE; 6ºA, Eco-School Students

Nº of involved students: 47

Different roles taken by students within the project: 3D Modeling: (11th Grade (PPM) and 12th Grade (TM) (Multimedia Professional Course); Micro:bit Programming (6th Grade (ICT) and 11th Grade (Physics) - (Multimedia Professional Course); Interdisciplinarity (12th Grade (PPM) (Multimedia Professional Course); Prototype Assembly: 11th Grade (Physics) (Multimedia Professional Course); Articulation (Eco-Schools Students).

Objective

The project aims to develop a nighttime automatic irrigation system for the school garden, using a micro:bit for control and photovoltaic solar energy accumulated during the day. This addresses the problem that during the month of August, there is an increase in temperatures and less availability of people to water the plants, which compromises their survival.

Why the Project is Innovative

It is innovative because of its autonomy and sustainability. The system is automatic and sustainable, using a light sensor via the micro:bit LEDs to measure ambient light and allow the garden to be watered during the night, while a solar panel provides renewable, sustainable, and clean green energy to recharge the batteries that power the micro:bit. It involves a deep integration of Design Thinking methodologies, 3D modeling, and block programming across multiple class years and professional courses, working in articulation with the Eco-Schools students.

Project Description

An automatic nighttime irrigation system for the school garden managed through block programming on a micro:bit. The system features efficient irrigation without waste, where a soil moisture sensor measures soil humidity and sends values to input pin P1 of the micro:bit; if the soil is dry, the micro:bit analyzes the values and triggers a relay module on pin P2, which switches on a 5V solenoid valve connected to a 4.5V external power source to safely water the plants, turning off automatically when sufficient humidity is detected. To construct this prototype, students used Tinkercad and SketchUP to

model and 3D print several components, including the water reservoir, reservoir supports, pots, solar panel support, and name plates. The materials, technologies, and tools used were a micro:bit board with rechargeable batteries, breadboard and jumper wires, expansion board, soil moisture sensor, 5V solenoid valve, 4.5V external power source, relay module, silicone tube, solar panel, 3D printed pots, 3D printed reservoir, and 3D printed support for the solar panel. The implementation actively involved several classes, including the 11th E and 12th E Multimedia Professional Courses for 3D modeling, interdisciplinarity, and prototype assembly, alongside the 6th A and 11th E classes for micro:bit programming.

Communication channels and communication methods used.

Informatics Day (Dia da Informática) where the entire educational community was involved, incorporating the final step of the Design Thinking methodology to present, test, and collect feedback.

Are the results open source? If so, under which license?

Yes, the results are open source under a free license.

Photos / Media Links



2.2.12 “Detetor de ruído” by Agrupamento de Escolas de Pinhel

Nº of involved teachers: 5

Class: 7th, 10th, 12th grades.

Nº of involved students: 101

Different roles taken by students within the project: Environmental Researchers & Analysts (7th Grade), Tech Developers & Maker Builders (7th Grade), Media Reporters & Producers (10th & 12th Grades), Active Citizens & Communicators (All Students).

Objective

To raise awareness among students regarding the negative effects of noise pollution on health and academic concentration within the school environment, while simultaneously driving active learning in technology, sciences, and civic responsibility. The project explicitly aims to use the micro:bit sound sensor to gather real-world data in high-volume areas such as the playground, multi-purpose hall, and school cafeteria, allowing students to propose simple, concrete technological solutions linked to sustainable development. Additionally, the project aims to preserve, promote, and value the local

cultural heritage and regional identity by actively documenting and broadcasting major community traditions and festivities.

Why the Project is Innovative

The project is innovative because it establishes a dual-focus educational model that bridges strict, hardware-based environmental engineering with cultural anthropology and media production under a unified civic theme. Instead of studying sustainability abstractly, students actively apply a multi-disciplinary maker approach, using digital fabrication (3D modeling and printing) and physical computing (micro:bit programming) to mitigate everyday school health problems. It breaks traditional learning walls by creating a vertical mentoring framework where students from different educational stages (7th, 10th, and 12th grades) collaborate simultaneously, turning traditional local festivities like the Carnival parade and the Traditions Fair, into active, contextualized digital learning labs for community-wide benefit.

Project Description

The project addresses the real problem of school noise pollution and links it directly to United Nations Sustainable Development Goals ODS 3 (Good Health and Well-Being) and ODS 11 (Sustainable Cities and Communities), alongside a parallel cultural preservation pathway. The framework articulates an extensive array of subjects, including Ciências, Físico-Química, Matemática, TIC, Informática, Aplicações Informáticas, Oficina Multimédia, Design Comunicação e Audiovisuais, and Cidadania e Desenvolvimento. Students model and print 3D enclosures via Tinkercad and Bee Soft, program micro:bits on MakeCode to alert noise limit breaches, and capture, edit, and produce short documentary videos of local events using computers, smartphones, and dedicated editing software. Continuous, formative assessment is planned using performance rubrics scored from 1 to 5 to measure curricular items (sound physics, statistics, coding, and media production) alongside essential transversal skills like collaboration, critical thinking, civic awareness, and digital literacy.

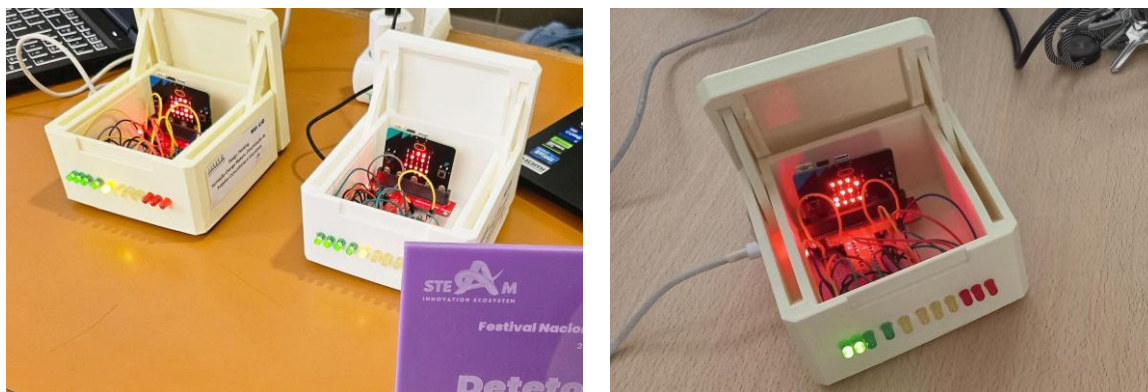
Communication channels and communication methods used.

The project deploys a dual communication approach combining physical data analysis and digital media broadcasting. Internally, students utilized direct oral presentations, group debates, and written reflections to evaluate the data collected regarding peak school noise hours. Externally, the project utilized mass-distribution communication channels to share findings and cultural content with the broader public. These methods included the publication of structured summaries and articles in the official school newspaper (*jornal escolar*), widespread digital posts across the Agrupamento's official institutional social media networks, and the public release of the student-produced cultural videos on the school's digital media platforms to engage families, operational assistants, and local residents.

Are the results open source? If so, under which license?

Yes, the results are open source under a free license.

Photos / Media Links



2.2.13 “The Bottle Catcher” by Agrupamento de Escolas de Pinhel

Nº of involved teachers: 4

Class: 10ºE, 12ºE e 9ºB

Nº of involved students: 35

Different roles taken by students within the project: Environmental Researchers & Analysts, Maker Builders & Tech Developers, 3D Designers & Programmers, Active Citizens & Digital Communicators.

Objective

The Objective of the project is to identify and analyze daily practices of plastic waste and excessive plastic use within the school environment, challenging students to find simple, creative, and feasible solutions to promote more sustainable behaviors. The project explicitly aims to connect these environmental challenges to the core curriculum of multiple subjects, demonstrating the practical value of sustainability at both local and global scales. Ultimately, the objective is to build a collaborative technological prototype that brings long-term, common advantages and environmental awareness to the entire school community.

Why the Project is Innovative

The project is innovative because it solves an environmental problem within the school community through the students' own development of a technological artifact. By creating a scale that quantifies the collected plastic in real time, the project makes the impact of recycling visible and interactive, awakening curiosity and motivating the community through a practical and technological problem-solving approach. It establishes a highly practical learning ecosystem where students build a custom physical device from scratch using digital fabrication (3D modeling and printing) and physical computing (Arduino microcontrollers combined with load sensors and HX711 modules). Also, it is innovative due to its multi-grade vertical collaboration, bringing together 9th, 10th, and 12th-grade students to co-create a functional piece of technology designed to actively measure and transform the civic and ecological habits of their own community.

Project Description

The project consisted of the development and assembly of a digital scale prototype integrated into a collection container. The technical construction utilized an Arduino UNO board connected to an HX711 module with four 50 kg load cells and a 1602 LCD screen with I2C communication to directly display

the weight readings of the accumulated plastic. The development involved designing and 3D printing specific support bases to fix the load cells, assembling the circuit with a breadboard on a structure with acrylic plates, and programming with blocks and code in the Arduino IDE using the HX711_ADC library, integrating 9th-grade students and Multimedia Professional Courses.

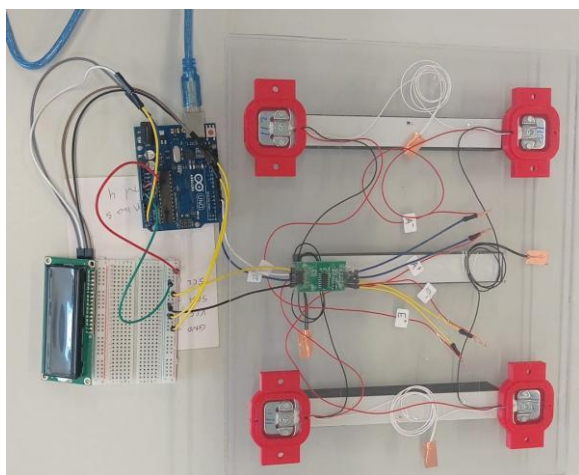
Communication channels and communication methods used.

The prototype was shared, demonstrated, and tested with the community during the School Cluster's Informatics Day (Dia da Informática), an event that involved teachers, students, and staff, serving as a platform to collect feedback on the scale's operation and raise awareness regarding the reduction of plastic waste.

Are the results open source? If so, under which license?

Yes, the results are open source under a free license.

Photos / Media Links



2.3 Student Project Report from Oeiras Science Clubs

2.3.1 "Bioprint Lab & Microbit" by Agrupamento de Escolas Aquilino Ribeiro

Nº of involved teachers: 1

Class: 8ºB

Nº of involved students: 5

Different roles taken by students within the project: N/A

Objective

To make the study of cells more interactive and practical, to develop skills in: critical thinking, creativity and design (3D modelling), programming (use of microbit), and to help better understand the functioning of some organelles.

Why the Project is Innovative

The innovative character of the project does not reside in the final product, but rather more in the pedagogical approach adopted. It stands out for the integration of Natural Sciences content with technology, programming, and 3D modeling, promoting a truly interdisciplinary learning. The use of the microbit associated with physical models allows transforming an abstract content, like the cell, into an interactive, practical, and exploratory experience. Furthermore, the project values "learning by

doing", encouraging creativity, critical thinking, and the active participation of students in building their own knowledge.

Project Description

Two interactive three-dimensional cells were developed, representing different types of cells (animal and vegetable), in which the organelles were built as modular pieces, similar to a LEGO-type fitting system, allowing their assembly and exploration in a practical way. Each organelle is identified, and only the nucleus, chloroplasts, and mitochondria integrate sensors connected to the microbit which, through programming, allow activating interactive responses. The project addressed making the study of cells less abstract and more visual and practical, demystifying modeling and the use of programming in simple projects, gamifying the study of the cell, and building educational materials that can be used by younger students. The materials, technologies, and/or tools used were 3D printing (in some components), micro:bit boards, simple electronic components (LEDs, cables, batteries), and programming in MakeCode.

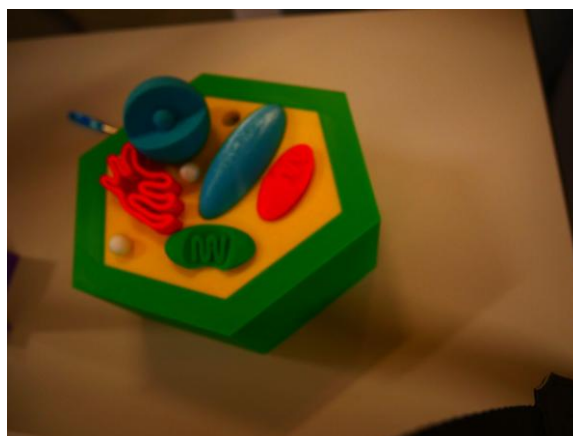
Communication channels and communication methods used.

The project will be disseminated in different contexts, promoting sharing with the educational community and the general public. It will be presented at the Science Clubs Meeting, at the European Researchers' Night, on the School Grouping Day, and at the "Open Laboratories" event. On a digital level, the project will be shared on the school grouping's social media. In addition to these initiatives, school exhibitions and demonstration sessions for other classes and education levels are also planned.

Are the results open source? If so, under which license?

Yes, the results are open source, but the license was not specified.

Photos / Media Links



2.3.2 “Drone controlled by neurosensor” from Escola Secundária Professor Santana Castilho Miraflores

School name: Escola Secundária Professor Santana Castilho Miraflores

Nº of involved teachers: 1

Class: 11ºC1; 11ºC2

Nº of involved students: 3

Different roles taken by students within the project: The students were divided into 3 different groups: Group 1 - Construction and control of the drone, Group 2 - Assistance in calibrating/recording the neurosensor and its interface with the drone, Group 3 - Calibration/control of the neurosensor and programming of its interface with the drone.

Objective

This project aims to develop and test an innovative and inclusive technological solution that allows controlling an FPV drone through brain signals, using the Emotiv Insight neurosensor. The project seeks to meet the needs of people with motor limitations, exploring alternative ways of interacting with technological devices that promote greater autonomy, accessibility, and quality of life. Simultaneously, it intends to investigate the potential of brain-computer interfaces in real application contexts, articulating programming, electronics, flight control, and social innovation.

Why the Project is Innovative

The project is innovative for exploring a form of drone control based on brain signals, replacing traditional interaction methods such as manual controls, gestures, or voice. By integrating a neurosensor with a programming system and an FPV flight platform, the team developed an uncommon, technologically advanced solution with strong potential for future application. The innovation of the project resides not only in the technology used, but also in its purpose. The proposal seeks to respond to a real challenge of accessibility, conceiving an alternative that can benefit people with motor limitations and increase their autonomy in interacting with technological devices. In this way, the project combines scientific experimentation, engineering, inclusion, and creativity, demonstrating how technology can be oriented to generate a positive social impact.

Project Description

A system for controlling an FPV drone through a neurosensor, the Emotiv Insight, capable of capturing brain signals and converting them into flight commands. These signals are processed by a programming interface that interprets them and communicates with the drone's control board, allowing the user to command its movements in an alternative way, without resorting to conventional manual controls. The prototype integrates three main components: the neurosensor, the signal processing system, and the FPV drone. The system was designed with safety concerns, ensuring that the drone remains stable in "hover" mode when valid commands are not detected. The project addressed the guiding questions: "Will it be possible to pilot a Drone using neurosensors?" and "How can we allow people with motor limitations to control an aerial device in a safe, intuitive, and autonomous way?". The materials, technologies, and/or tools used were an FPV drone with a DFR Source One V5 5 frame, 2306 motors, flight controller and ESC F4 FC + F55 PRO II 4IN1 ESC, a CNHL 2200 mAh 6S 40C battery, HQProp 5x propellers, a FrSky Archer radio receiver, a TBS M8.2 GPS, an Emotiv Insight Model 2.0 neurosensor, and a programming interface for reading, interpreting, and integrating brain signals with the flight system.

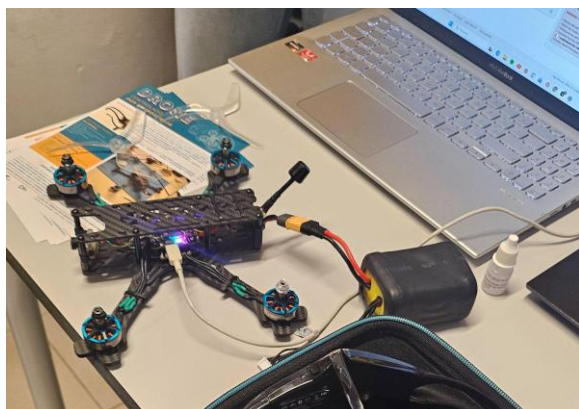
Communication channels and communication methods used.

The project will be shared through different means, such as informative posters, digital presentations, demonstrative videos of the prototype's functioning, and visual contents for online dissemination. The sharing of the project will take place in a school context, namely on the School Grouping Day, through the public presentation of the work and the demonstration of the prototype. Participation in science events and fairs is also planned, such as the Young Scientists and Researchers contest in Porto. Additionally, the project will be disseminated on digital platforms and social media.

Are the results open source? If so, under which license?

Yes, it is intended that the results of the project can be reused and adapted by others, especially in educational, technological experimentation, and research contexts. For this purpose, the [project documentation](#), presentation materials, and pedagogical content can be made available in an open regime, allowing their sharing and adaptation with due attribution.

Photos / Media Links



2.3.3 “SmartMove” AI by Agrupamento de Escolas Aquilino Ribeiro

Nº of involved teachers: 1

Class: 8ºC

Nº of involved students: 3

Different roles taken by students within the project: N/A

Objective

To develop an interactive system based on micro:bit capable of identifying and classifying different types of movement (walking, running, jumping, standing still), using data collection and analysis through sensors and an introduction to artificial intelligence concepts. The project aims to promote active learning in a STEAM context and raise awareness about the importance of physical activity.

Why the Project is Innovative

The project is innovative for introducing artificial intelligence concepts in a simple and accessible way to the school context, allowing students to understand how data can be used to identify behavior patterns. It transforms physical movement into interpretable digital data, promoting an active, experiential, and interdisciplinary learning integrated into the STEAM model.

Project Description

The prototype consists of a portable device based on micro:bit that records and interprets the user's movements. The students perform different physical activities while the system collects data, which are later used to identify movement patterns. The result is presented in a simple way through icons or messages on the device, allowing immediate feedback. The project addressed a proposal from the Robotics Club students to apply technology to real school situations, such as the need to improve the assessment and understanding of the quality of movement in Physical Education classes, which is often based only on visual observation. The materials, technologies, and/or tools used were micro:bit boards,

integrated accelerometer, programming in MakeCode, computers/tablets, USB cables and batteries, and Microbit createai.

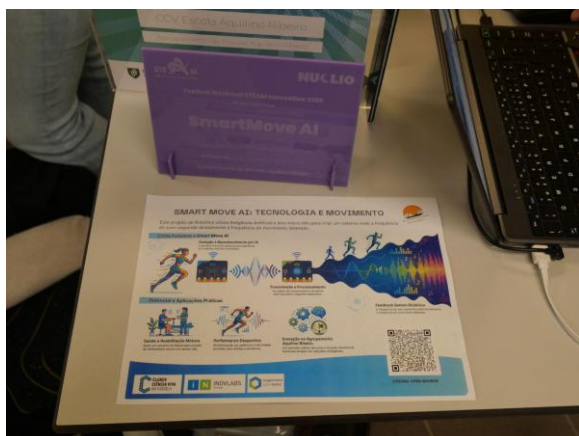
Communication channels and communication methods used.

The project will be presented at the Science Clubs Meeting, the School Grouping Day, the European Researchers' Night, and the Open Laboratories Day. It includes sharing with other classes in the school, and during this school year, dissemination materials such as explanatory posters and/or demonstrative videos of the prototype's functioning may also be created. The dissemination will be complemented through the school grouping's social media.

Are the results open source? If so, under which license?

Yes, under the creativecommons.org guidelines (the specific license variant was not explicitly designated beyond referencing the creativecommons.org website).

Photos / Media Links



2.3.4 “Sustainable repurposing of vape cells for building powerbanks” by Escola Secundária Professor Santana Castilho - Miraflores

Nº of involved teachers: 1

Class: 11ºC2

Nº of involved students: 3

Different roles taken by students within the project: During the course of the work, all group members experienced each of the tasks necessary for the project's execution, in order to ensure an understanding and ability to explain all the steps. Therefore, the work was distributed equally among the three group members.

Objective

The main objective of the present work is to reuse lithium-ion cells from disposable electronic devices, namely vapes, giving them a second useful life through the development of a portable powerbank. The project seeks to respond simultaneously to two current challenges: the growing production of electronic waste and the need for more sustainable, accessible, and efficient portable energy storage solutions. This approach fits within the Sustainable Development Goals, particularly SDG 12 – Responsible Consumption and Production, by valuing materials that, despite being frequently discarded, still maintain functional potential. By transforming recovered cells into a new useful device,

the project promotes the circular economy, waste reduction, and a more responsible use of technological resources. In a perspective of future evolution, the project foresees increasing the system's capacity by combining more cells in parallel, as well as the possible integration of solar energy charging and electromagnetic induction charging, reinforcing the autonomy, versatility, and innovative character of the solution.

Why the Project is Innovative

The project is innovative because it transforms electronic waste into technologically useful resources, proposing a concrete application for lithium-ion cells that, despite being frequently discarded, still conserve functional potential. This approach combines environmental sustainability with technological innovation, demonstrating how the reuse of materials can originate solutions with practical and educational value. The innovation also resides in the way the project articulates several dimensions in a single prototype: recovery of components, portable energy storage, electrical safety, manufacturing of its own structure, and the possibility of future evolution with the integration of solar energy and induction charging. Instead of limiting itself to passive recycling, the project proposes an active logic of redesign and technological reapplication. It is also important to highlight the strong educational component of the work, where students developed skills in the areas of electronics, energy storage systems, battery safety, circuit assembly, physical prototyping, and critical thinking applied to solving real problems. In this sense, the project's innovation is simultaneously technical, environmental, and pedagogical.

Project Description

The developed solution consists of a portable powerbank built from the reuse of lithium-ion cells recovered from disposable electronic devices, such as vapes. The prototype was implemented with a 1S8P configuration—one cell in series and eight in parallel—and integrates a battery management system (BMS) responsible for ensuring safe charging and discharging conditions. The system converts the stored energy to a 5 V USB output, allowing the charging of devices such as mobile phones and laptops. The project addressed the problem of the increase in electronic waste and the need for more sustainable portable energy solutions, focusing on the guiding questions: "Is it possible to reuse Lithium cells?", "What efficiency does it present?", "Does it make sense to reuse them?", and "Are single-use batteries really single-use, or is it possible to repurpose them?". The materials, technologies, and/or tools used were recovered vape cells, kapton tape, a multimeter, various tools, a perforated board for soldering, a charge controller module, XH2.54 connectors, an H961 U V6.1 model powerbank controller, and an acrylic box for the physical structure dimensioned and manufactured through laser cutting.

Communication channels and communication methods used.

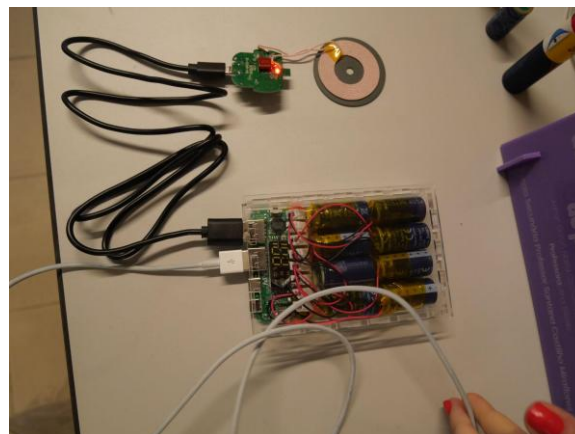
The project will be shared through different means of dissemination, using materials developed or to be produced such as informative posters, digital presentations, demonstrative videos of the prototype's functioning, and visual content intended for online dissemination. The dissemination of the project will take place in a school context, namely on the School Grouping Day, through the public presentation of the work and the demonstration of the powerbank. Participation in science events and fairs is also planned, such as the Annual Meeting of Science Viva Clubs in School (CCVnE) in Santarém and the Young Scientists and Researchers contest in Porto. Parallely, the project will be disseminated on social media and other digital platforms.

Are the results open source? If so, under which license?

Yes, it is intended that the results of the project can be reused and adapted by other people, especially in educational, maker, and technological experimentation contexts. For documentary, explanatory,

and dissemination materials, the Creative Commons Attribution 4.0 International license (CC BY 4.0) is proposed. If code, schematics, or technical instructions developed by the team are made available, the MIT license may be adopted.

Photos / Media Links



2.3.5 “Energy!... to feel, transform, transfer, convert” by Escola Secundária Luís Freitas Branco

Nº of involved teachers: 2

Class: Clube Ciência Viva aePA

Nº of involved students: 6

Different roles taken by students within the project: N/A

Objective

This project was developed within the scope of the Science Club and aims to develop scientific, technical, and technological skills, aligned with the Student Profile by the End of Compulsory Schooling. It intends to promote integrated and meaningful learning, linking science, technology, engineering, arts, and mathematics to real problems; develop 21st-century skills, such as critical thinking, creativity, collaboration, communication, and digital literacy; foster interdisciplinarity, uniting different fields of knowledge around practical challenges; make learning more active, experimental, and motivating; and prepare for the future, stimulating interest in scientific and technological fields, as well as ethical and environmental awareness. The project focuses on the research and application of renewable energies as a sustainable alternative to fossil fuels, through the creation of innovative solutions for transporting people in a smart city, promoting an active role in solving real problems and building a more sustainable future.

Why the Project is Innovative

The project is innovative because it places the students at the center of learning as researchers and creators. It integrates several disciplines around a real problem; promotes project-based and inquiry-based learning; addresses an essential and current theme: energy transition and sustainability; and connects scientific knowledge to creativity and environmental responsibility. This approach better prepares students for the real challenges of society.

Project Description

An interdisciplinary project based on the exploration of renewable energies as a response to current energy challenges. Students were challenged to investigate real problems, such as energy consumption and environmental impact, and to develop practical solutions, such as prototypes or models of renewable energy systems, for example, solar panels or hydrogen cells applied to transport systems. The project addressed the difficulties felt in problem-solving and in the practical application of curricular contents, which are often approached in a too theoretical way and disconnected from reality, while recognizing the urgent need to look for new energy alternatives for humanity due to the rapid decline of fossil fuels and the growing importance of the energy transition. The materials, technologies, and/or tools used were recyclable and low-cost materials for prototype construction, renewable energy kits (miniature solar panels, motors, among others), digital tools for research, simulation, and presentation of results, computers and educational software, and collaborative digital platforms for organizing and sharing work.

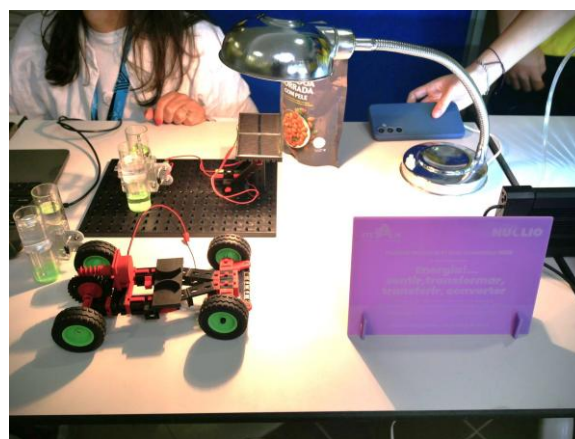
Communication channels and communication methods used.

The project will be shared through science fairs, the Researchers' Night, club meetings, and presentations in the school community.

Are the results open source? If so, under which license?

No.

Photos / Media Links



2.3.6 “Caixinha da Ciência - Trivial geológico” by Agrupamento de Escolas de Carnaxide

Nº of involved teachers: 2

Class: C4 Club

Nº of involved students: 4

Different roles taken by students within the project: The students were divided into 4 different groups: Question development, preparation & organization of materials, 3D Modelling and Printing, and Information Gathering.

Objective

To create a differentiating activity, with the ultimate purpose of promoting learning and students' enthusiasm for Geology in a playful way.

Why the Project is Innovative

This Science Box integrates principles of game-based learning by incorporating elements such as rules, challenges, progression, and immediate feedback. This approach stimulates students' intrinsic motivation and promotes the development of cognitive skills, such as reasoning, problem-solving, and the ability to apply knowledge in new contexts. Simultaneously, it enhances social skills, such as cooperation, communication, and respect for rules. The defined objectives for this activity reinforce its pedagogical relevance. Students' motivation for Geology is promoted through a playful and interactive approach, which awakens interest and scientific curiosity. The systematization and application of knowledge about the three large groups of rocks, sedimentary, magmatic, and metamorphic, as well as the associated landscapes, contributes to an integrated understanding of the curricular contents and the interconnection between the different geological processes. The practical component of the activity, namely the observation and classification of rock samples using a dichotomous key, values the development of essential scientific skills, such as observation, analysis, and decision-making. The use of a simplified geological map of Portugal also enables the contextualization of knowledge, bringing it closer to the national reality and promoting geoscientific literacy. Finally, the recognition of the applications of rocks in society contributes to highlighting the relevance of Geology in everyday life, reinforcing its utility and importance. In short, the Caixinha da Ciência: Trivial Geológico constitutes a didactic strategy that combines a playful character with scientific learning, promoting not only the acquisition of knowledge but also the development of essential skills for the full training of students.

Project Description

The Caixinha da Ciência - Trivial Geológico is a pedagogical game to be played in 7th-grade Natural Sciences classes by students, and can also be used as an instrument for revision and introduction to the geology chapter in the 10th-grade Biology and Geology discipline, or even be requested in the library by students from different classes to play among themselves. The objective of the Geological Trivial is to demonstrate knowledge about Geology in different categories and travel with the geologist's hammer (pawn), answering questions/performing challenges (identifying a rock; locating lithologies on the geological map), thus managing to add minerals to the rock. When six minerals of different colors representing each category have been collected, one travels to the Center of the Earth to answer a final question/challenge, thus becoming certified as a Geologist Apprentice. The project arose within the scope of the "Caixinhas da Ciência" project of the C4 – Clube Crescer com Ciência of the Agrupamento de Escolas de Carnaxide, through a process of co-creation (student-teacher) to address the difficulties of students in knowing and understanding various concepts and phenomena linked to Geology, as well as the disinterest and demotivation towards this area of Science. The materials, technologies, and/or tools used were Tinkercad for 3D modeling of the different models (minerals, rock, pawn, cardholder, boxes for the rock samples); Thingiverse to search for some models of objects that could not be modeled alone; Cura to create the gcode files to print on the Club's 3D printer; Canva to create the game board with the different icons; instructions (prompts) and an AI tool (ChatGPT) to help create the various game logos and categories; natural materials such as 16 samples of different rocks, 1 hourglass, 2 dice, 1 dice cave, diluted hydrochloric acid, a hand magnifying glass, a dichotomous key for classification/identification of rock samples, a simplified geological map of Portugal, 240 cards with questions/challenges, and 6 card organizers.

Communication channels and communication methods used.

A poster and abstract for the congress were created. A Roll-up and a leaflet will be produced. It will be presented at events: at the XIX Congress Scientists in Action in Estremoz on April 17th; at the 3rd Meeting of Science Viva Clubs of Oeiras; at SciComPt2026 in Évora on May 27th, 28th, and 29th; and at the European Researchers' Night at the Oeiras Marina in September 2026. It will be played by 7th-grade students in the Natural Sciences subject during the 3rd period.

Are the results open source? If so, under which license?

Yes. CC BY-NC-SA 4.0. Trivial geológico © 2026 by Olavo Dinis is licensed under Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International.

Photos / Media Links



2.3.7 “Evaluation of Liquid Tree Efficiency in Improving Air Quality” by Escola Secundária Luís de Freitas Branco

Nº of involved teachers: 2

Class: 12ºB, 12ºC

Nº of involved students: 6

Different roles taken by students within the project: N/A

Objective

To develop an urban photobioreactor (“Liquid Tree”) capable of capturing CO₂ and releasing O₂ through the cultivation of photosynthetic microalgae, contributing to the reduction of global warming and to the improvement of air quality in urban environments.

Why the Project is Innovative

The photobioreactor combines biotechnology, engineering, and sustainability to create a compact and replicable CO₂ capture solution. It is innovative by proposing a complementary solution to traditional green areas where the space available to plant trees is reduced, offering a compact, efficient, and technologically advanced alternative to help reduce atmospheric CO₂.

Project Description

A functional photobioreactor, built from an adapted aquarium, with a lighting system (solar or artificial), a CO₂/O₂ sensor, and a medium agitation system achieved through porous stones connected to an air pump, ensuring the continuous circulation of the medium and cultivated microalgae (*Nannochloropsis Oceanica*). The system allows monitoring the rate of CO₂ capture and O₂ release, demonstrating the potential of microalgae as a sustainable biotechnological solution. The project addressed the problem that in the municipality of Oeiras, where our school is located, there is an extensive green space—the Parque dos Poetas—which contributes to improving air quality; however, rapid urban growth and the sharp increase in car traffic have caused higher emissions of carbon dioxide (CO₂), reducing the effectiveness of existing green areas in compensating for this impact. The materials, technologies, and/or tools used were electronics (CO₂ and O₂ sensors), programming (Arduino and ThingSpeak for data collection and visualization), 3D modeling and printing (support pieces and adapters for tubes and sensors), and biotechnology (microalgae culture in the laboratory and transfer to the bioreactor).

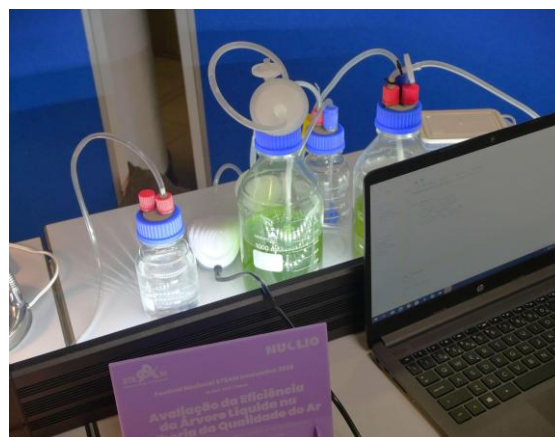
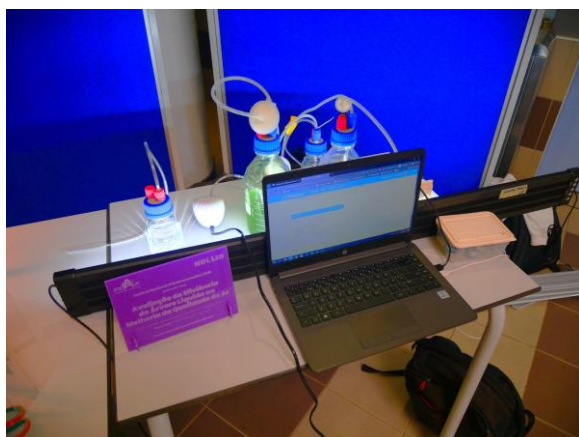
Communication channels and communication methods used.

A scientific poster and an explanatory video about the development and functioning of the photobioreactor are being prepared. The video will include a QR code, which will be placed both on the poster and on the photobioestimulator itself. Dissemination will also be carried out on the social media of the school's Clube Ciência Viva, namely on Instagram and the YouTube channel. The project will be presented at the school's Project Exhibition, open to the community, and will also be presented in a poster format at the Biofase Congress, promoted by the Escola Superior de Biotecnologia of the Universidade Católica do Porto. In addition, it will be present at the "Fascination of Plants Day" event, organized by ITQB NOVA.

Are the results open source? If so, under which license?

Yes. The project is open source, allowing other schools or researchers to replicate or adapt the photobioreactor. Suggested license: Creative Commons Attribution NonCommercial ShareAlike (CC BY NC SA 4.0)—allows reuse and adaptation with attribution, without commercial purposes.

Photos / Media Links



3 Learning STEAM through Theatre (T3.2)

3.1 The Greece Experience (Science View)

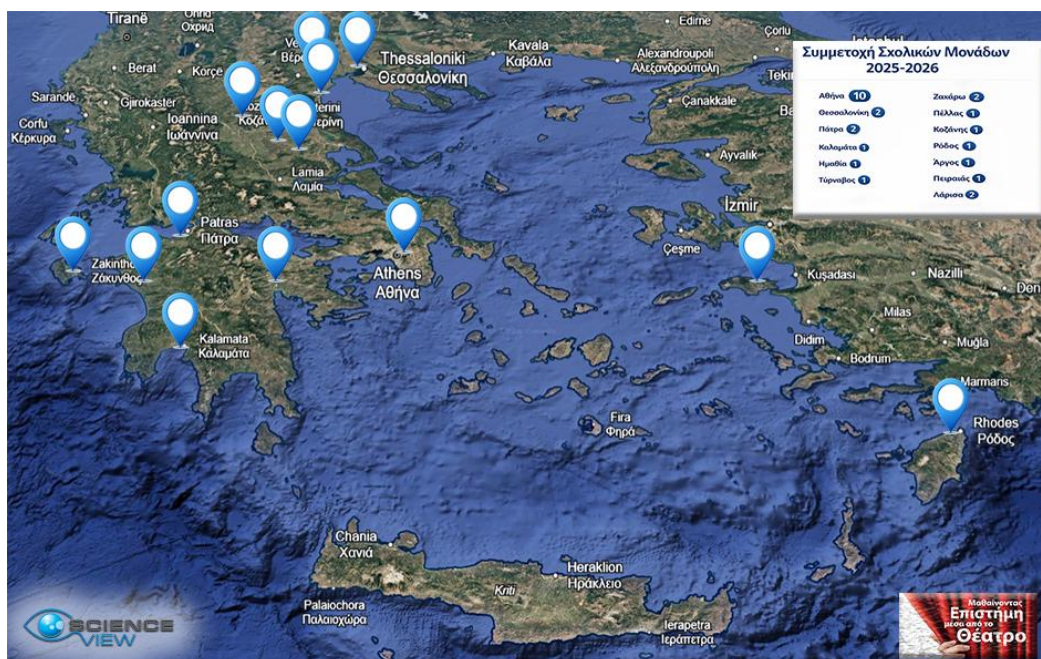
The “Learning STEAM through Theatre” module, which is described in D2.3, was implemented by Science View in Greece. The Greek implementation brought together schools from different educational levels and regions, highlighting the creative potential of students when science, technology, engineering, arts, and mathematics are approached through inquiry, collaboration, and artistic expression.

The implementation of this module was closely connected to the **Learning Science Through Theater (LSTT - <https://lstt.eu/>)** methodology, an educational approach that encourages students to explore scientific concepts through theatre, storytelling, performance, music, movement, visual expression, and digital media. Through this process, students do not simply reproduce scientific knowledge; they transform it into meaningful narratives, characters, dialogues, stage actions, and creative products. In doing so, they develop a deeper understanding of scientific ideas while strengthening key competences such as critical thinking, communication, teamwork, creativity, problem solving, and self-expression.

The Greek student projects reflect a broad range of scientific and social themes, including biology, physics, chemistry, astronomy, mathematics, environmental sustainability, artificial intelligence, technological evolution, health education, energy, climate change, and the history of science. Many projects also connect scientific knowledge with ethical, emotional, cultural, historical, and civic dimensions, demonstrating the value of STEAM education as a holistic and inclusive learning framework. The participating students assumed active roles in scriptwriting, acting, directing, choreography, music, set and costume design, video production, sound, lighting, communication, and dissemination, showing that student agency lies at the heart of the learning process. In Greece, the mentorship programme supported school teams in moving from an initial STEAM idea to a complete theatrical performance ready for presentation at the Learning Science Through Theater Festival. Guidance focused on strengthening the connection between the scientific content and the dramatic structure, supporting teachers and students in turning research and classroom experiments into characters, scenes, dialogue, soundscapes, and stage action.

The projects were presented as part of the wider Learning Science Through Theater Festival 2026, which took place in two phases. The first phase was held live in Athens on 25–26 April 2026 at Ellinogermaniki Agogi, bringing together students, teachers, families, and the wider educational community. The second phase, organised online on 16–17 May 2026, featured additional student performances submitted in video format and presented through a dedicated streamed event open to the public via the Science View YouTube channel. This dual-format structure expanded participation and accessibility, enabling schools from across Greece to share their work with a broader audience.

Overall, **27 teams from schools around Greece (13 regions)** participated with performances that **involved more than 600 students and 100 teachers**.



The projects that were developed by the STEAM innovation teachers and students in Greece are showcased in the following pages.

3.2 Project Showcase

3.2.1 "The Organs You Carry" by the 1st Junior High School of Argyroupoli

Nº of involved teachers: 1

Class: Junior High School: Grades A, B and C

Nº of involved students: 17 students: 3 from Grade A, 6 from Grade B and 8 from Grade C

Different roles taken by students within the project: The creative and production process was carried out through collaboration between the students and their teacher. The entire group, together with the teacher, participated in writing the script, directing, set design, and costume design. The humorous introduction was written by Giorgos Erginitis, a grade C student, and presented by the entire group. Dimitris Astras, a grade C student, handled the lighting and sound. The performance used music from The Smurfs as an alarm clock sound, and there was no choreography, interactive performance, original or live music, video, or PowerPoint presentation. Representatives at the event were Eftychia Sueref, a grade B student, and Zenia Repani and Giorgos Erginitis, grade C students. No artificial intelligence tools were used.

Objective

The objective of the performance is to help the audience understand the coordinated function of the human body through the everyday life of an adolescent. By presenting the organs of the body as active characters facing challenges, the performance aims to show how complex bodily systems work together so that a teenager can complete ordinary daily activities, such as waking up, getting ready for school, attending lessons, and interacting socially.

Why the Project is Innovative

The project is innovative because it transforms human biology into a humorous theatrical narrative from the perspective of the body's organs. Instead of presenting scientific knowledge in an abstract or textbook-based way, it personifies biological functions and connects them with familiar adolescent experiences. This approach makes science accessible, emotionally engaging, and relevant to students' everyday lives.

Project Description

We follow the daily life of an average teenager, George, through the lens of the challenges his body's systems face as he goes about his simple or more complex daily tasks: waking up in the morning (because he's a sleepyhead), getting ready and going to school, attending his classes, and... of course... making the best possible impression on his classmate: Elenitsa. Do his body parts have trouble coordinating? Is there competition between them? Are there difficult challenges they must overcome? Is it easy for a teenager's body to function, after all?

Communication channels and communication methods used.

Communication and promotion of the project took place through multiple channels and communication methods. Specifically, we utilized our theater group's Facebook page, as well as our school's official website, to keep the school community and the general public informed.

At the same time, a poster and related promotional materials were created to publicize the project and attract interest. Additionally, the project was presented to the professional group of science teachers as a best-practice example at the end of April. Finally, the initiative was also showcased at our annual event at the Municipality of Elliniko-Argyroupoli's facility for people with disabilities, which took place on Wednesday, April 29, 2026.

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko/>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 00:26:50 – 00:54:15

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.2 "Alice in the Land of Sciences" by the DIM.O.S. Junior High School of Kozani - Group 1

Nº of involved teachers: 2

Class: Junior High School: Grades 7th and 8th

Nº of involved students: 15 students: 9 from 7th Grade and 6 from 8th Grade

Different roles taken by students within the project: The screenplay was written by Irini Agorastou, Athina Papadimitriou, and Manos Mintelis, seventh-grade students, as well as Stavroula Yamouridou, Christina Pantziou, and Triantafyllenia Tzioutziou, second-year middle school students, without the use of AI tools. Direction, set design, and costumes were handled by Irini Agorastou and Athina Papadimitriou, 7th-grade students, and Stavroula Yamouridou, Christina Pantziou, Triantafyllenia Tzioutziou, and Kleio Komninou, second-year middle school students. There was no choreography or interactive performance. No original music was composed, nor were there any composers, orchestration, or live performance, while AI tools were used to replace copyrighted selections. The background music was selected by the students themselves, and Yann Tiersen's "Amelie" was used, in a piano recording by Irini Agorastou. The video/PPT was created by Irini Agorastou and Stavroula Yamouridou, Christina Pantziou, Triantafyllenia Tzioutziou, and Kleio Komninou. Lighting was handled by Dimitra Papastergiou and Athanasia Kondyli, 7th-grade students, and Myrsini Tsimtsiliakou and Katerina Pafili, 8th-grade students, while sound was managed by Ioanna Ziambra, Panagiota Tsiolaki, Natalia Koulouri, and Anna Tiganidou, 7th-grade students. Representatives at the event were Irini Agorastou and Athina Papadimitriou, 7th-grade students, and Stavroula Yamouridou and Kleio Komninou, 8th-grade students.

Objective

The objective of the performance is to introduce students and the audience to scientific curiosity through a fantasy story inspired by Alice in Wonderland. Through Alice's encounters with unusual scientific characters and phenomena, such as a rabbit entering a black hole, a scientist in a laboratory, a perfectionist queen, and a disappearing cat, the performance aims to show that life is full of strange and fascinating things that can be explored through science.

Why the Project is Innovative

The project is innovative because it combines a familiar literary framework with scientific concepts, creating a playful bridge between imagination and scientific inquiry. By reinterpreting a well-known story through the lens of science, the performance encourages students to view scientific discovery as an adventure. It also uses theatrical fantasy to make complex ideas more approachable and memorable.

Project Description

A girl is bored, so her mom reads her a bedtime story—one that resembles a well-known tale, but with a twist. It's "Alice in the Land of Science," where you can encounter all sorts of strange creatures: a rabbit running into a black hole, an eccentric scientist in her laboratory, a perfectionist queen in her

castle, and a cat that vanishes. Through Alice's adventures, the little girl learns that life is full of strange things, which one discovers through science.

Communication channels and communication methods used.

The initiative was promoted through multiple communication channels, such as the school's website, the school's YouTube channel, the social media accounts of teachers, students, and the school, as well as local media outlets. A trailer was posted on the school's YouTube channel so that the public could learn about the performance. Additionally, relevant posters were displayed throughout the school premises to keep the school community continuously informed about the initiative. Finally, during the visit of the Minister of Education, Ms. Sofia Zacharaki, to our school, a briefing was held regarding the performance and the competition in which we participated.

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko/>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 1:05:57 – 1:32:20

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.3 "Escape Science" by DIM.O.S Junior High School of Kozani – Group 2

Nº of involved teachers: 2

Class: Junior High School: Grades 7th and 8th

Nº of involved students: 15 students: 9 from 7th Grade and 6 from 8th Grade

Different roles taken by students within the project: The script was written by Natalia Koulouri, Panagiota Tsiolaki, Ioanna Ziambra, and Anna Tigianidou, first-year middle school students, without the use of AI tools. The direction, set design, and costumes were handled by Ioanna Ziambra, Panagiota Tsiolaki, Natalia Koulouri, Anna Tigianidou, Dimitra Papastergiou, and Athanasia Kondyli, 7th-grade

students, as well as Myrsini Tsimtsiliakou and Katerina Pafili, 8th-grade students. There was no choreography or interactive performance. No original music was composed; there were no composers, orchestration, or live performance, while AI tools were used and most of the musical pieces were likely AI-generated. The background music was selected by Anna Tiglianidou, a 7th-grade student. The video/PPT and lighting were handled by Irini Agorastou and Athina Papadimitriou, 7th-grade students, and Stavroula Yamouridou, an 8th-grade student. Christina Pantziou, Triantafyllenia Tzioutziou, and Kleio Komninou, second-year middle school students, handled the sound. Representatives at the event were Natalia Koulouri and Anna Tiglianidou, 7th-grade students, and Katerina Pafili, an 8th-grade student.

Objective

The objective of the performance is to demonstrate the value of school scientific knowledge in problem-solving situations. Through the story of seven girls who are transported to a mysterious place and must solve scientific riddles in order to return home, the performance aims to show that knowledge gained at school can be practical, useful, and empowering.

Why the Project is Innovative

The project is innovative because it presents science through the structure of an escape-room adventure. The theatrical performance turns scientific knowledge into a set of challenges that must be actively solved, creating suspense, participation, and narrative motivation. This makes learning appear dynamic and problem-based rather than passive, while also highlighting collaboration and critical thinking.

Project Description

One night, seven girls are watching a scary movie when suddenly lightning strikes; they are electrocuted and find themselves in a mysterious place, where a strange man with a hat and a cane sets them scientific puzzles. They must use all their school knowledge to solve the puzzles and return home. Will they succeed?

Communication channels and communication methods used.

The event was promoted through multiple communication channels, including the school's website, the school's YouTube channel, the social media accounts of teachers, students, and the school, as well as local media outlets. A trailer was posted on the school's YouTube channel so the public could learn about the performance. Additionally, relevant posters were displayed throughout the school premises to keep the school community continuously informed about the initiative. Finally, during the visit of the Minister of Education, Ms. Sofia Zacharaki, to our school, a briefing was held regarding the performance and the competition in which we participated.

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko/>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 1:45:11 – 2:15:30

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.4 “Body...Guards” by Bougas Schools – Junior High School

Nº of involved teachers: 3

Class: Junior High School: Grades 8th and 9th

Nº of involved students: 12 students: 7 from 8th Grade and 5 from 9th Grade

Different roles taken by students within the project: The students participated in the direction, suggesting ideas for the stage action and the characters' movements. For the costumes, Ada Filippopoulou and Myrto Papakonstantinou oversaw the painting of body parts on the T-shirts. Panagiota Avriliou, Evgenia Lekakou, Stavrilia Moudanou, Melina Bachrami, Katerina Onipko, Myrto Papakonstantinou, Ioanna Spyropoulou, and Ada Filippopoulou participated in the choreography. For the live music, Panagiota Avriliou played the violin, while Melina Bahrami and Giorgos Prasinos played the piano. The humorous introduction was performed by Dimitris Kargakos and Arsenios Michaleakos.

Objective

The objective of the performance is to explore the relationship between adolescent choices, emotional pressure, and the health of the human body. Through the story of Alexandros, a teenager struggling with anxiety and the need to find his place in the world, the performance aims to show how the organs of the body react, worry, and try to protect him when he begins making harmful choices.

Why the Project is Innovative

The project is innovative because it combines biology, emotional education, and adolescent mental well-being within a theatrical framework. The organs of the body become “guardians” with voices, personalities, concerns, and emotions, allowing the audience to understand health not only as a

biological issue but also as a human and psychological one. The students' involvement in staging, costumes, choreography, and live music further strengthens the creative and interdisciplinary character of the project.

Project Description

Alexander, a teenager struggling with the need to find his place in the world, as well as with the anxiety and pressure of the events around him, begins to make choices that aren't good for him. He doesn't want to hurt himself... he's just looking for a way out. But inside him, in a world that only the imagination can reveal, live the "Body...guards": the organs of the body, each with a personality, an opinion, and... plenty of complaints. Sometimes comical, sometimes tender, and sometimes serious, they begin to talk among themselves, to wonder, to worry, and to look for ways to protect him.

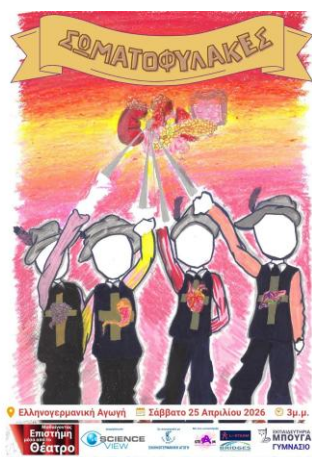
Communication channels and communication methods used.

The initiative was promoted through the school's various communication channels, such as social media—specifically Facebook and Instagram—the school's official website, the school's online platform, and the school's Viber group. At the same time, printed promotional materials were created. Specifically, posters were printed and displayed on 12 school buses operating in the city and the wider Kalamata area. In addition, relevant brochures were printed to further inform the public. Finally, the initiative was also promoted through mentions on local radio stations, specifically Emphasis and Life FM.

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko/>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 3:02:10 – 3:33:30

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.5 “Charges in Action” by Junior High School of the Holy Metropolis of Piraeus

Nº of involved teachers: 2

Class: Junior High School Grade 9th

Nº of involved students: 24

Different roles taken by students within the project: Lydia Chroni and Agisilaos Skarpas contributed to the writing and performance of the humorous prologue, as well as to the writing of the script and the direction. Dimitra Tsiamitrou contributed to the set design and costumes, while Katerina Chavredaki contributed to the set design and choreography. Dimitra-Styliani Pilaki and Styliani Tzeferakou conceived the choreography and also participated in its performance. Maria Theocharaki, Konstantina Zepou, Anastasia Koutrali, Anastasia Monandera, Erifyli-Chrysoula Fousteri, and Michaela Kasara. Alexandros Kefalidis performed the live piano accompaniment and selected the background music. Dimitrios Lekkanidis created the video/PPT and, together with Apostolos Papakonstantinou and Christos Pasaoglou, handled the lighting and sound.

Objective

The objective of the performance is to present Coulomb’s Law through theatre. By focusing on electric charges and their interactions, the performance aims to help the audience understand a core physics concept in a visual, performative, and engaging way.

Why the Project is Innovative

The project is innovative because it turns an abstract law of physics into a theatrical and interactive experience. Scientific content that is usually expressed through formulas and classroom explanation is instead embodied through characters, movement, music, choreography, and stage action. The fact that the performance is described as interactive also adds an experiential dimension, inviting the audience to encounter physics as something lively and observable.

Project Description

Coulomb's Law

Communication channels and communication methods used.

The school organized activities within the school community.

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko/>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 3:45:10 – 4:15:35

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.6 “The Passions of Galenite and the Furnace of Love” by 3rd Junior High School of Glyfada

Nº of involved teachers: 2

Class: Junior High School Grades 7th, 8th and 9th

Nº of involved students: 22 students: 10 from 7th Grade, 1 from 8th Grade and 11 from 9th Grade

Different roles taken by students within the project: Danae Dimitra Tzolou contributed to the writing of the humorous introduction and the script, the composition and orchestration of original music, the singing, the selection of background music, and the creation of videos/PPT presentations. Panagiotis Samoilis and Olga Vourvachi performed the humorous introduction. The entire theater group contributed ideas to the direction, set design, costumes, and choreography, and the performance also included interactive elements. The choreography was performed by Orionas Andreopoulos, Danae Karaka, Zoe Komnioti, Lydia Bazigou, Angeliki Derou, and Evangelia Sousouni. For the live music, Danae Dimitra Tzolou sang, Irini Denisova played the piano, and Orionas Andreopoulos played the guitar. Eleni Patsouri handled the lighting and sound.

Objective

The objective of the performance is to present the processing of galenite into silver and its historical importance through a dramatic story set in ancient Lavrio 2,500 years ago. Through the love story between the noble Athenian Hebe and Lysippos, a master craftsman in galenite processing, the performance aims to connect geology, metallurgy, history, and human emotion.

Why the Project is Innovative

The project is innovative because it approaches a scientific and technological process through historical romance and theatrical storytelling. It brings together earth science, ancient mining, metallurgy, music, dance, and historical imagination. By embedding the processing of galenite in a love story, the performance makes a technical subject emotionally engaging and culturally meaningful.

Project Description

We are in Lavrio 2,500 years ago. The noble Athenian woman Ivi falls in love with Lysippos, a master craftsman in the processing of galenite at her uncle's mine-workshop. A love story is born amidst the furnaces, the ore washing facilities, and the mining galleries! A love story that unfolds alongside the processing of galenite into silver and its immense significance!

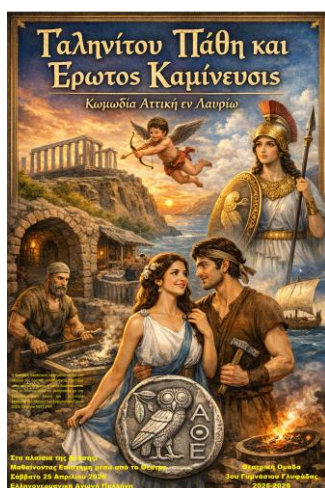
Communication channels and communication methods used.

Our theater group has participated in the initiative without fail since 2016, with the sole exception of the period of COVID-19 restrictions, promoting and sharing its performances through various communication channels. The initiative was presented and screened at the Municipality of Glyfada, with a scheduled presentation at the "Melina Merkouri" Municipal Cinema-Theater on May 25, 2026. In addition, a related presentation was given on P Day at the Ralleios Junior High and High School on March 14, 2026. At the same time, the initiative was promoted through the YouTube channel of the Drama Group of the 3rd Gymnasium of Glyfada, as well as online via digital newspapers—beyond "Dialeima"—and on social media platforms such as Facebook, Instagram, LinkedIn, and TikTok used by students and teachers. In addition, the project was featured on television programs, such as "Peri Paideías," as well as at international conferences and scientific astronomy workshops, such as COSPAR 2022, the ESA Teach with Earth from Space Workshop on April 3 and 4, 2023, and the 5th Shaw-IAU Workshop on November 30, 2023. In addition, a new presentation was scheduled for the 17th World Scientific Congress of the Geological Society in Lesbos, May 28–31, 2025. Finally, the project was presented at the Athens Science Festival, where our team was also awarded an EPI2 grant.

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko/>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 4:29:32 – 4:56:05

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.7 “Mission to Mars” by Ellinogermaniki Agogi – Primary School

Nº of involved teachers: 15

Class: Primary School: 5th grade

Nº of involved students: 142 students participated in preparation activities; 18 students participated in the live stage presentation

Different roles taken by students within the project: In the first performance, the story of students Anna-Maria Giannakopoulou, Andrianis Thanopoulou, Maximos Mellos, Evangelos Moutmtzis, and Vasiliki Roxani formed the basis of the script, which was enriched with elements from the stories of Dimitris Agapakis, Olivia Georgiadis, Sotiris Korda, Lydia Kourouklis, and Adriana Lazarakopoulou. The fifth-grade students contributed sketches for the sets, ideas for the costumes, musical motifs, and lyrics, while Melina Skandali participated in the live performance by playing the violin.

In the second performance, sixth-grade students Andreas Bakoulas, Georgia Kontogeorgiou, Yolina Palaialogou, Thomais Andritsopoulou, Maximos Spyridakis, Margeta Valma, Melia Tseza, Fotis Botsas, Valia Politopoulou, and Vasilis Margaritis participated in writing the script. Georgia Kontogeorgiou, Yolina Palaialogou, Thomais Andritsopoulou, Margeta Valma, and Melia Tsezzana also contributed to the set design and costumes, while the performance was interactive in nature.

Objective

The objective of the performance is to present a mission to Mars as a collective scientific journey of exploration. Through the collaboration of scientists and astronauts, the performance aims to highlight the importance of teamwork, scientific knowledge, calmness under pressure, and the human desire to understand the unknown. The performance emphasizes that space exploration is not about conquest, but about understanding the world and humanity’s place in the universe.

Why the Project is Innovative

The project is innovative because it frames space science as a collective human and educational experience. It connects astronomy, exploration, cooperation, and ethical reflection, moving beyond the idea of scientific progress as individual achievement. The large-scale student participation also gives the project a strong collaborative character, showing science as something created through “togetherness.”

Project Description

The play depicts a mission to Mars, where a team of scientists and astronauts works together to explore the unknown and search for signs of life. Through challenges and difficulties, the importance of cooperation, scientific knowledge, and composure is highlighted. The mission is not aimed at conquest, but at understanding the world and humanity’s place in the universe. The journey culminates in a deeper realization: that progress is achieved only through “togetherness.”

Communication channels and communication methods used.

- Informing parents via a notice
- Reporting on and presenting the project at an awards ceremony
- Posts on the school’s website
- Publication via the school’s Facebook page
- Dissemination via the Panhellenic School Network (PSN)
- Presentation of the initiative at the 5th-grade workshops event (on April 23)

- Creation of an informational display at the event venue
- Posting of summary materials on the school's website
- Posting on the school's Facebook page after the completion of the activity

Are the results open source? If so, under which license?

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Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 00:36:27 – 1:08:10

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.8 “Uranographic Stories” by Moraitis School – Primary School

Nº of involved teachers: 2

Class: Primary School: 6th Grade

Nº of involved students: 13

Different roles taken by students within the project: The sixth-grade students Andreas Bakoulas, Georgia Kontogeorgiou, Yolina Palaiologou, Thomais Andritsopoulou, Maximos Spyridakis, Margeta Valma, Melia Tseza, Fotis Botsas, Valia Politopoulou, and Vasilis Margaritis contributed to the script. Additionally, Georgia Kontogeorgiou, Yolina Palaiologou, Thomais Andritsopoulou, Margeta Valma, and Melia Tsezzana contributed to the set design and costumes. The performance was interactive, though no other specific student involvement in choreography, music, video/PPT, lighting, or sound was reported.

Objective

The objective of the performance is to introduce students and the audience to the beauty of the night sky and the stories of the constellations. Through the experience of children or scouts on an overnight outdoor trip, the performance aims to connect astronomy, mythology, storytelling, and personal reflection.

Why the Project is Innovative

The project is innovative because it combines observation of the sky with narrative, music, and students' lived experiences. Instead of presenting astronomy only as the study of celestial bodies, it presents the constellations as stories that can connect with children's own lives. The use of live student-performed music also enriches the performance as an interdisciplinary artistic-scientific experience.

Project Description

A group of students who, throughout their lives, made significant contributions to the advancement of the natural sciences, yet were known only within the close-knit circle of the scientific community. Who are these "unknowns" to us, the general public, and what was their "role" in the history of science? They are: Irène Curie, Hedy Lamarr, Claude Shannon, Christos Papakyriakopoulos (Papa), and Georges Lemaître.

Communication channels and communication methods used.

The school organized activities within the school community.

Are the results open source? If so, under which license?

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Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 1:23:32 – 1:46:55

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.9 “At the Palace of Cronus” by General Lyceum of Melissia

Nº of involved teachers: 1

Class: Lyceum: 10th and 11th Grades

Nº of involved students: 25

Different roles taken by students within the project: All the students in the group contributed to writing the humorous introduction, developing the script through research, written material, and improvisation, as well as devising the choreography and contributing directorial ideas. Amanda Nikolaidi and George Syrgiannis performed the humorous introduction, while Amanda also served as the group’s representative at the event. Panagiotis Batsis handled the direction, the creation of the video/PPT, and served as the group’s representative at the event. Eva Kalantzi and Giannis Mourtzanos handled the set design and costumes. Ada Malisiova, Katerina Kounali, Angeliki Zeppatou, and Mikaela Milo performed the choreography. For the live music, Panagiotis Manolas played the piano and selected the background music, Vasilis Mallios played the guitar, while Filareti Zaloni, Georgina Didaskalou, and Giorgos Syrgiannis sang. Petros Vountidis handled the lighting console, Giorgos Skourdianos the lighting rig, and Giannos Ydraios the sound.

Objective

The objective of the performance is to challenge misunderstandings about scientific experimentation through a story involving two cats and two scientists. A frightened cat believes she is being pursued for an experiment, but through the unfolding story and the scientists’ discussion, the cats realize that things are not as they initially imagined. The performance aims to encourage a more thoughtful understanding of science and scientific practice.

Why the Project is Innovative

The project is innovative because it uses the perspective of animals to explore fear, misunderstanding, and the interpretation of scientific activity. By presenting science through a humorous and indirect narrative, the performance invites the audience to question assumptions and reconsider how scientific experiments are perceived. The collective creation of the script through students’ ideas and improvisations also makes the project participatory and student-centered.

Project Description

We find ourselves in the province of Attica around 400 B.C. An elderly, wealthy farmer and his faithful slave embark on an adventure to uncover the secrets of time. Starting from the palace of Cronus, our hero meets the Hours and, accompanied by Dawn, travels through space. He converses with Orion, Sirius, and the Moon... One thing is certain: after this journey, he is no longer the same man. Let’s follow them on this cosmic adventure! We’ll learn a lot alongside them!

Communication channels and communication methods used.

- Social media (Facebook, Instagram)
- Posts on the school website
- YouTube videos
- Information brochures and invitations (print and digital)
- Posters (print and digital)
- Informational videos (trailers)
- Personal updates and sending invitations via email

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko/>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 3:01:36 – 3:35:50

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.10 "Chemistry or...Peace?" by Model General Lyceum of Varvakeio School

Nº of involved teachers: 3

Class: Lyceum: 10th and 11th and 12th Grade

Nº of involved students: 23

Different roles taken by students within the project: Christina Papayannopoulou wrote the humorous introduction, performed it alongside Andriana Bravou, and worked on the sound. Elisabeth Karagouni and Sotiris Vlachos were involved in the direction, while Elisabeth Karagouni also served as the event's spokesperson. Anastasia Zafeiratou and Aikaterini Vlisma conceived and executed the choreography. Panagiotis Varkatzas composed and orchestrated the original music, played the piano, selected the background music, and served as a representative at the event. Petros Saragas played the piano, Myrto Tsiailta the guitar, Angeliki Giannaki the flute and served as a representative, Filippos Mavragannis the bouzouki, and Pantelis Defteraios the trumpet. Symela Matziridi created the video/PPT, while Dimitra Vlachopanagioti handled the lighting and sound.

Objective

The objective of the performance is to present the contribution of chemistry to the progress of humanity while also examining the misunderstanding that science itself is responsible for war. The performance aims to show that the harmful use of scientific knowledge is the result of human choices, and it raises questions about the responsibility of scientists in relation to the way science is applied.

Why the Project is Innovative

The project is innovative because it connects chemistry with ethics, peace, and social responsibility. Rather than presenting chemistry only through discoveries or achievements, it encourages reflection on how scientific knowledge is used by society. The performance therefore turns a scientific subject into a moral and civic discussion, helping students and audiences think critically about the role of science in human progress.

Project Description

The script is based on an exploration of the structure of the atom (protons, neutrons, and electrons) as well as quantum theory, which was developed through the study of the lives of the five key scientists who established it. It focuses on the interests, hobbies, and social activities of the five Nobel laureates in quantum mechanics to highlight that these scientists were not isolated from society during the major events unfolding in their time. It also highlights their involvement in activities such as music or sports in light of their broad general education.

Communication channels and communication methods used.

The school organized activities within the school community.

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko/>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 3:59:06 – 4:49:35

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.11 “Energized: Energy Here, Energy There, Make Energy!” by 13th Primary School of Palaio Faliro

Nº of involved teachers: 3

Class: Primary School: 5th Grade

Nº of involved students: 19

Different roles taken by students within the project: Nikos Kaldanis and Giannis Kossenias performed the humorous introduction. Michalis Alatsakis, Maximos Imbrixis, Danae Karakozi, Ektoras Konstantakelis, and Maria Saloura performed the kinetic piece on fundamental forces and elementary particles. Panagiotis Vamvakas and Danae Karakozi created the performance logo, “The Many-Faced Energy.” Myrsini Vakalopoulou and Mikaela Gkioulou composed original music, while Panagiotis Dimas created digital music and AI-supported sound signals. Nikos Kaldanis, Panos Dimas, and Giannis Kossenias wrote the lyrics for “The Rap of Energization.”

Objective

The objective of the performance is to help students and the audience understand that energy is present everywhere and in many forms. Through the characters Mikro, a passionate scientist, and Makro, a dreamy poet, the performance explores different ways of approaching the world and concludes that life on the planet can be wonderful if people remain active, responsible, and “energized” as human beings and citizens. The performance also aims to raise awareness about the environmental crisis, the uncritical use of scientific knowledge and technology, and the need to seek sustainable solutions through energy.

Why the Project is Innovative

The project is innovative because it combines science, poetry, environmental education, movement, music, and visual symbolism. Energy is not presented only as a scientific concept but also as a social and civic responsibility. The performance connects renewable energy, fundamental forces, elementary particles, sustainability, choreography, body percussion, student-created lyrics, graphics, and digital tools, turning a complex *scientific and environmental topic into a rich interdisciplinary theatrical experience*.

Project Description

Mikro, a passionate scientist, and Makro, a dreamy poet, try to understand the world. Although they approach reality in different ways, they both realize that everything is energy, in every form and for every reason. They conclude that life on this planet can be wonderful, provided that people remain active and responsible citizens. Observing the uncritical use of scientific knowledge and technology, as well as the environmental crisis, Mikro and Makro join forces and seek Energy itself to help humanity overcome its dead end.

Communication channels and communication methods used.

1. Our school’s website
2. A poster featuring the performance’s logo, to be distributed on the day of the performance to the general audience of the school’s parents and teachers from the co-located school (8th Elementary School)
3. EKEFE DEMOKRITOS – Collaborating scientist from EKEFE with the ultimate goal of continuing our collaboration next year
4. Teleconference between our school’s Rhetoric Club and its counterpart at the Evangelical School’s Junior High School to discuss this topic.

Are the results open source? If so, under which license?

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Learning Science Through Theater website (<https://lstt.eu/yliko/>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 00:07:19 – 00:31:20.

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.12 “Once Upon a Time... For Real” by Primary School of Zarko

Nº of involved teachers: 5

Class: Primary School: 3rd and 4th Grade

Nº of involved students: 12

Different roles taken by students within the project: Fabiola Ntoi, Michailia Mitrouisia, Angelo Plakou, Ioanna Koutsiana, Besian Mouska, and Benard Korri performed the choreography. Michailia Mitrouisia, a 3rd Grade student, represented the students at the event.

Objective

The objective of the performance is to present the water cycle through the form of a fairy tale, while showing how this natural cycle has been disturbed in recent years. The performance aims to connect the scientific understanding of the water cycle with the consequences of extreme weather events and environmental disruption.

Why the Project is Innovative

The project is innovative because it uses the familiar and imaginative structure of a fairy tale to explain a scientific and environmental phenomenon. By combining storytelling, music, choreography, and visual material, the performance makes the water cycle accessible to younger students while also linking it to real contemporary environmental challenges. The use of images created with ChatGPT also adds a digital-creative element to the theatrical presentation.

Project Description

The performance presents the water cycle in the form of a fairy tale. Through this narrative structure, it shows how the natural water cycle has been disturbed in recent years, causing damage through intense weather phenomena.

Communication channels and communication methods used.

The school organized activities within the school community.

Are the results open source? If so, under which license?

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Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 00:31:21 – 00:48:25

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.13 “Diabetes Goes to School” by 10th Primary School of Neapoli

Nº of involved teachers: 3

Class: Primary School: 3rd Grade

Nº of involved students: 11

Different roles taken by students within the project: All students participated in the choreography of the performance. No additional student roles were specifically reported.

Objective

The objective of the performance is to inform students, families, and educators about basic principles related to type 1 diabetes in children. Through the story of Fotis, a student with type 1 diabetes, the performance aims to present his fears, his daily life, and the support he receives from classmates, his teacher, the school nurse, and his family. It also highlights inclusion, equality, scientific knowledge, and the importance of cooperation within the school community.

The project is innovative because it combines health education, scientific understanding, theatrical play, and social inclusion. Diabetes is presented not only as a medical condition but also as a shared educational and community issue. The performance links the cooperation of the organs in the human body with the cooperation of school, family, and classmates, creating a powerful metaphor for inclusion and support. The use of AI tools in script development also adds a contemporary digital dimension.

The performance aims to inform students about basic principles related to type 1 diabetes. Fotis, a student with type 1 diabetes, shares his health condition with his classmates, expresses his fears to his family and classmates, and gives information about life with diabetes. His classmates, teacher, school nurse, and family support him and treat him as an equal member of the group. Just as the organs of his body cooperate so that his organism can function with diabetes, the school community and family also cooperate to create the best possible conditions for inclusion and scientific understanding.

- The event was publicized via the official email lists of the schools under the Directorate of Primary Education of Western Thessaloniki.
- It was promoted through the printed program published by the Municipality of Neapoli-Sykies for the Education Festival and distributed to schools, shops, clubs, senior centers, etc.
- Through posters that were printed and displayed at various points of interest in the local community (schools, the municipal office, local retail stores, supermarkets, etc.).
- Via the school's official student email accounts to inform the rest of the parents and students at the school.
- On the school's website

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko/>) that are free to use from other persons by giving the credits to the specific team that created the project.

Θεατρική Παράσταση
«Ο Διαβητής πάει σχολείο!»
 10^η Δ.Σ. Νεαπόλη
 Υπεύθυνος εκπαιδευτής: Ζερβό Κωνσταντίνος, Σχολικός Αρθρικός

Γιορτή Παιδείας και Πολιτισμού
 Δήμου Νεαπόλεως Σκύδρας

Παρασκευή 29/7/2026
 Ώρα: 10:00
 Διεύθυνση εκδήλωσης:
 10^η Δ.Σ. Νεαπόλη

Τμήματα από διαδραστικό
 πρόγραμμα από 17 Μαΐου 2026
 Διατίθεται στο διαδραστικό
 τμήμα της Science View

Η θεατρική παράσταση πραγματοποιείται στο πλαίσιο της δράσης «Εκπαιδευτικές Εκδηλώσεις από τον Δήμο Σκύδρας» με χρηματοδότηση από τη Science View, σε συνεργασία με την Ελληνική Εταιρεία Διαβητικής Νόσου (ΕΕΕΔΝ) και στο πλαίσιο των Ευρωπαϊκών Έργων OSO, CASE και NEXT STEP.

Επιστήμη
 Θέατρο

SCIENCE
 VIEW

ΕΛΛΗΝΙΚΗ ΕΤΑΙΡΕΙΑ ΔΙΑΒΗΤΙΚΗΣ ΝΟΣΟΥ
 ΕΕΕΔΝ

OSO

CASE

NEXT STEP



D3.1 - STEAM Project Anthology

Video of the performance available [here](#), from 00:48:27 – 1:01:28

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.14 “Humans and Machines — or, About the Heart” by 4th Primary School of Tyrnavos

Nº of involved teachers: 5

Class: Primary School: 6th Grade

Nº of involved students: 12

Different roles taken by students within the project: The 6th Grade theatre group wrote and performed the humorous introduction. The 6th theatre group also contributed to the script. The students performed the choreography, and student-created music was composed with the use of AI through SUNO. Dimitris Exarchos represented the students at the event.

Objective

The objective of the performance is to explore the relationship between humans and Artificial Intelligence. Through the character AI4all, an AI entity trying to understand what makes humans unique, the performance examines both the possibilities and the limits of technology. The heart is presented both as a biological organ of the circulatory system and as a symbol of emotion, relationships, communication, cooperation, and humanity.

Why the Project is Innovative

The project is innovative because it brings together biology, Artificial Intelligence, ethics, emotion, and theatre. It does not treat technology only as a technical tool but asks what it means to be human in an age of AI. The performance creates a dialogue between children and technology, while also using AI-generated music through SUNO. Its innovation lies in combining scientific knowledge about the heart with philosophical and social reflection on human-machine coexistence.

Project Description

The performance explores the relationship between humans and Artificial Intelligence through AI4all, who tries to understand what makes human beings unique. Through the dialogue between an AI entity and a group of children, the performance highlights both the possibilities and limits of technology. The heart is presented both as a vital organ of the circulatory system and as a symbol of emotion, relationships, and humanity. The story concludes with the need for balanced coexistence between humans and AI, centered on communication, cooperation, and togetherness.

Communication channels and communication methods used.

- School website and blog.
- Social media accounts for the school and the school community.
- European educational platforms and collaboration networks such as eTwinning.
- Verbal updates and communication with neighboring schools and partner schools abroad.
- Presentations at educational conferences and festivals.
- In-person briefings for students, teachers, parents, and guardians.
- Open events at the school to promote the initiative.
- Informing local community organizations and the Municipality.

- Promotional digital materials, such as videos, photos, songs, choreography, and a promotional video.

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko/>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 1:01:29 – 1:23:26

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.15 “The Secret of Mary Poppins” by Primary School of Kampos, Zakynthos “Panagiotis Chiotis”

Nº of involved teachers: 7

Class: Primary School: 4th Grade, sections D1 and D2

Nº of involved students: 39

Different roles taken by students within the project: Six students from section D1 performed the humorous introduction. The students contributed through improvisations that were used in the choreography and body percussion. All students performed the choreography and participated in the singing. Anastasia-Lamprini Mylona and Angeliki Morfi represented the students at the event.

Objective

The objective of the performance is to explore sound, emotional intensity, family life, and what is considered normal or problematic in everyday behaviour. Through the story of Mrs. Karachaliou, a mother overwhelmed by crying, laughter, daydreaming, and quarrels among her children, the performance aims to show how scientific explanations and psychological guidance can help families understand and manage daily challenges.

Why the Project is Innovative

The project is innovative because it combines theatre, psychology, sound, rhythm, body percussion, and a well-known cultural figure, Mary Poppins, in order to approach family and emotional life creatively. Scientific notes and psychological advice are embedded within a humorous theatrical story, making issues of behaviour, emotion, and everyday family stress accessible to children. The use of children's improvisations in choreography and body percussion further strengthens the participatory and creative character of the project.

Project Description

Mrs. Karachaliou, a mother with many children, experiences unpleasant sounds at home as her children cry, laugh, daydream, and quarrel at levels of intensity that disturb her and make daily family life difficult. In order to deal with this "family chaos," she visits a psychologist, who uses scientific notes to explain what is normal and what is not. The psychologist then gives her the magical recipe: to hire Mary Poppins as a nanny.

Communication channels and communication methods used.

- School website and channel
- Local newspapers and local cultural websites
- Facebook – Online community of drama education teachers ("Friends of PESYTH")
- Social media

Are the results open source? If so, under which license?

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Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 1:23:28 – 1:47:43.

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.16 “Energy: The Final Battle for Earth” by Primary School of Zacharo

Nº of involved teachers: 5

Class: Primary School: 5th Grade

Nº of involved students: 16

Different roles taken by students within the project: The students performed the choreography of the performance. No additional student roles were specifically reported.

Objective

The objective of the performance is to teach students and the audience about different forms of energy and the importance of protecting the planet from climate change. Renewable and non-renewable energy sources are presented as characters who initially disagree but eventually understand the need for cooperation. The performance emphasizes energy saving, the use of renewable sources, responsibility, and hope for the planet’s future.

Why the Project is Innovative

The project is innovative because it personifies forms of energy and turns the climate crisis into a humorous but meaningful theatrical conflict. Scientific and environmental concepts are made understandable through character interaction, music, choreography, and an optimistic narrative. The performance also includes original music and live accordion, strengthening its artistic identity while communicating a clear environmental message.

Project Description

The performance presents, with humour, different forms of energy that meet in order to help Earth, which is suffering from climate change. Renewable and non-renewable energy sources disagree, but with the help of a student and a teacher, they understand the need for cooperation. The performance emphasizes the importance of saving energy and using renewable sources to protect the planet. In the end, all forms of energy cooperate and Earth “smiles” again, sending a message of optimism and responsibility.

Communication channels and communication methods used.

The school organized activities within the school community.

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko/>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 1:47:45 – 1:57:05

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.17 “Mania’s Hands: A Story about Marie Curie” by Experimental Primary School of the University of Thessaloniki

Nº of involved teachers: 3

Class: Primary School: 4th, 5th and 6th Grade

Nº of involved students: 15

Different roles taken by students within the project: The student group contributed to the creation of scenes and phrases for the script. Artemis Wyllie Katsiki performed the choreography. Marios Georgousis contributed to the lighting of the performance.

Objective

The objective of the performance is to present important moments from the life of Marie Curie, also known as Mania Sklodowska, with emphasis on the discovery of radioactivity and the impact of her work on science and everyday human life. The performance aims to introduce students to a major scientific figure and to show how scientific discovery can transform both the scientific world and society.

Why the Project is Innovative

The project is innovative because it uses dramatized choral narration to present the life and scientific contribution of Marie Curie. Instead of offering a simple biography, it combines theatre, movement, narration, music, and collective scene creation. Students participate in shaping scenes and phrases of the script, making the project both historically grounded and creatively collaborative.

Project Description

The performance is a dramatized choral narration of moments from the life of Marie Curie, also known as Mania Sklodowska. It focuses on the discovery of radioactivity and the effect of her work both on the scientific world and on people's everyday lives.

Communication channels and communication methods used.

- Posters displayed inside and outside the school
- School website
- Facebook / Instagram

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko/>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 1:57:07 – 2:19:45

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.18 "Training the Grandparents" by Junior High School of Zacharo

Nº of involved teachers: 5

Class: Junior High School: 7th, 8th and 9th Grade

Nº of involved students: 41

Different roles taken by students within the project: Konstantinos Dimitroulas contributed to the writing of the humorous introduction. The humorous introduction was performed by Konstantinos Dimitroulas, Fotis Laliotis, Nikoletta Chronopoulou, Konstantina Fotopoulou, Eleni Karapanagioti, Chrysa Kourouvani, Elisso Lampopoulou, Panagiota Tzevelekou, Ourania Polydorou, and Maria Karapanagioti. The students contributed to the script according to the part of the performance in which they participated. Students also participated in the direction and in the creation of the set design according to their section of the performance. Each student prepared their own costume according to their understanding of their role. Nikoletta Chronopoulou, Konstantina Fotopoulou, Eleni Karapanagioti, Chrysa Kourouvani, Elisso Lampopoulou, Panagiota Tzevelekou, Ourania Polydorou, and

Maria Karapanagioti performed the choreography. Stavroula Kalatzantonaki selected the title music and represented the students at the event.

Objective

The objective of the performance is to teach the periodic table and chemical elements through intergenerational communication. The grandchildren “train” their grandparents by sharing what they have learned at school about chemical elements, their properties, their behaviour, and their role in modern life. The performance also aims to show that chemistry is connected to real-world issues, including technology, rare earth elements, and geopolitical dimensions.

Why the Project is Innovative

The project is innovative because it transforms the periodic table into a lively, humorous, and intergenerational learning experience. Chemical groups such as noble gases, alkaline earth metals, alkalis, and halogens are represented through personalities and comic relationships, making chemical properties easier to understand. The performance also connects chemistry with modern technology and global realities, showing that science is not isolated from society.

Project Description

The grandchildren undertake to “train” their grandparents, enthusiastically sharing what they have learned at school about the periodic table and chemical elements. Through creative videos and humorous presentations, they explain the properties and behaviour of elements, turning knowledge into a vivid experience. Noble gases are presented as self-sufficient and aristocratic, alkaline earth metals as active and valuable for life, while alkalis and halogens are connected through comic relationships that symbolize chemical bonds. The performance also *highlights the importance of rare earth elements for modern technology and their geopolitical dimension, showing that science is not disconnected from reality.*

Communication channels and communication methods used.

Social media (Facebook, Instagram, TikTok), local media, newsletters, the school newspaper, and the school website.

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko/>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 2:21:16 – 2:40:57

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.19 “Two Personalities of Yesterday Discuss Our Wonderful World” by Experimental Junior High School of Patras

Nº of involved teachers: 3

Class: Junior High School: 7th, 8th and 9th Grade

Nº of involved students: 6

Different roles taken by students within the project: Giorgos Kalogeropoulos and Charis Vasilakopoulou performed the humorous introduction. Ioanna Drakatou and Konstantina Theodoropoulou conceived and performed the choreography.

Objective

The objective of the performance is to present atomic theory and the theory of light through a fictional dialogue between Democritus and Leucippus in Abdera. Through dialectical discussion, the performance shows how ancient philosophical reasoning led to ideas that would only be scientifically confirmed many centuries later.

Why the Project is Innovative

The project is innovative because it connects ancient Greek philosophy with modern scientific understanding. By using dialogue as a theatrical and educational method, the performance highlights the historical development of scientific ideas and the power of reasoning before experimental confirmation. It makes abstract scientific theories more accessible by placing them in a human conversation between historical thinkers.

Project Description

Democritus and Leucippus meet in Abdera and discuss atomic theory and the theory of light. Through their dialectical relationship and dialogue, they reach conclusions that would only be scientifically proven two thousand years later.

Communication channels and communication methods used.

We used our school's YouTube channel and posted the video of our play. This channel is linked to the corresponding page on Facebook and Instagram.

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 2:40:59 – 2:49:55

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.20 "Rigas Velestinlis: From Physics... to Freedom!" by 1st Junior High School of Kaisariani

Nº of involved teachers: 3

Class: Junior High School: 7th, 8th and 9th Grade

Nº of involved students: 15

Different roles taken by students within the project: Odysseas Androutsos wrote the script. Nikos Dalezios played Newton, brought the green screen used for filming, directed the filming, edited the final video, and completed the video production. Students from the choir recorded the song used in the end credits.

Objective

The objective of the performance is to show the connection between scientific knowledge, Enlightenment thinking, and the struggle for freedom. Set on the last night before the murder of Rigas Velestinlis, the story presents him explaining why he wrote Physics Anthology and recounting

imaginary conversations with Galileo, Newton, Diderot, and Voltaire. The performance aims to show that intellectual awakening and scientific knowledge helped prepare the way for liberation.

Why the Project is Innovative

The project is innovative because it links physics with history, political awakening, and the Enlightenment. Science is presented not only as knowledge about nature but also as a force that can challenge ignorance and superstition. The use of green screen filming, student direction, editing, and digital imagery also gives the project a cinematic and technologically creative dimension.

Project Description

The performance takes place in 1821, when the Greeks chose “Freedom or Death.” Before taking up arms, however, they had to be spiritually awakened. Rigas Velesinlis is presented as the Enlightenment figure who led them beyond ignorance and superstition. The film follows Rigas during the last night before his murder, as he explains to his companions why he wrote Physics Anthology and recounts imaginary conversations with Galileo, Newton, Diderot, and Voltaire during the writing process.

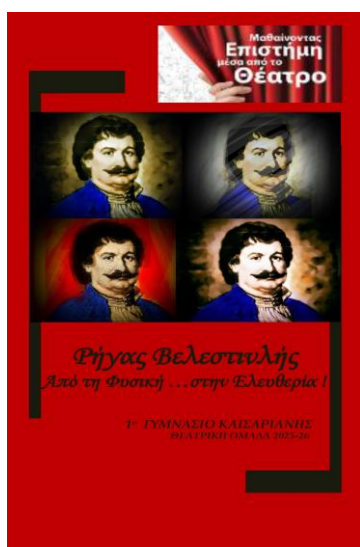
Communication channels and communication methods used.

The school organized activities within the school community.

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko/>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 2:49:56 – 3:05:40

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.21 “Me and My Monkey: A Journey into Evolution” by 7th Junior High School of Athens

Nº of involved teachers: 1

Class: Junior High School: 8th and 9th Grade

Nº of involved students: 8

Different roles taken by students within the project: Vangelis Mendrinou performed the humorous introduction. The students of the group wrote the lyrics of the song, which were then used with SUNO to create AI-supported music.

Objective

The objective of the performance is to introduce the concept of evolution through a theatrical journey across time. In an apparently ordinary classroom, a monkey and Darwin guide students from prehistory to the present day, helping them reflect on human origins, identity, and the continuing story of evolution.

Why the Project is Innovative

The project is innovative because it transforms evolutionary theory into a humorous and imaginative classroom adventure. By combining Darwin, a monkey, students, music, and time travel, the performance makes evolution more narrative, accessible, and engaging. The students' lyrics were used with SUNO to create AI-supported music, adding a contemporary digital and creative element to the scientific theme.

Project Description

In a classroom that seems ordinary, an unusual journey begins. A monkey and Darwin narrate the story, and time unfolds before the students' eyes. From the silence of prehistory to the noise of the present, human beings search for themselves. Among bananas and books, the past meets the future, and evolution becomes a story that is still being written.

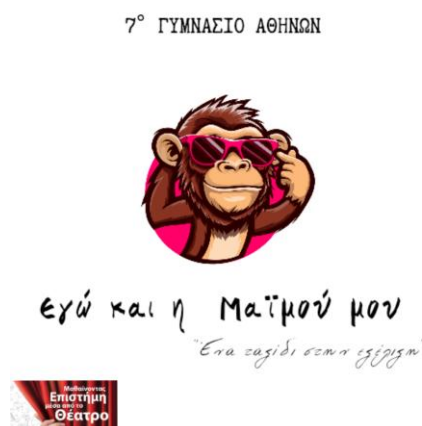
Communication channels and communication methods used.

The school organized activities within the school community.

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko/>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 3:05:42 – 3:18:51

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.22 “A Chemical Thread Bound, Wrapped Clockwise Around an Imaginary Axis; Give Enzymes to Open It, Let Mitosis Begin...” by Ursuline Greek-French School – Junior High School

Nº of involved teachers: 2

Class: Junior High School: 9th Grade

Nº of involved students: 14

Different roles taken by students within the project: All students performed the choreography. Giorgos Bafes, Matthaïos Verykokakis, and Maria Zacharopoulou represented the students at the event.

Objective

The objective of the performance is to dramatize the process of mitosis and help the audience understand cell division. Through the story of Tselinoulis, a cell preparing to divide, and King DNA the 46th, the performance presents the duplication of genetic information, the role of enzymes, chromosome condensation, and the phases of mitosis: prophase, metaphase, anaphase, and telophase.

Why the Project is Innovative

The project is innovative because it turns a complex biological process into a symbolic theatrical experience using characters, movement, rhythm, and role-play. DNA, enzymes, chromosomes, and cellular division are embodied on stage, making invisible microscopic processes visible and understandable. The performance's theatrical structure allows students to experience biology through action rather than memorization.

Project Description

The student group dramatizes a fairy-tale-like story, turning mitosis into a theatrical experience. The main character is Tselinoulis, a cell preparing to divide in order to continue life. In the “castle” of the nucleus lives King DNA the 46th, who gives the order for the duplication of genetic information. Enzymes unwind the “chemical thread,” creating faithful copies, while chromosomes condense and prepare for the great exit. Two conductors appear to organize the precise separation of genetic material, ensuring that each new cell receives equal and identical genetic content. Through movement, rhythm, and symbolic roles, the students represent the phases of mitosis and highlight the importance of cell division for growth and the preservation of life.

Communication channels and communication methods used.

The school organized activities within the school community.

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko/>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 3:18:51 – 3:26:25

For all the photos and the videos, Science View has the required consent from the students’ parents.

3.2.23 “Nezha Learned Physics... and Then Got Debugged” by 3rd Junior High School of Argyroupoli

Nº of involved teachers: 1

Class: Junior High School: 8th and 9th Grade

Nº of involved students: 7

Different roles taken by students within the project: The students who performed the roles also contributed to the direction of the performance. Regina Merkai was responsible for the video

recording and final video production. Christos Laios, who played BYTE, and Georgia Sigala, who played Newton, represented the students at the event.

Objective

The objective of the performance is to present Physics, Programming, and Robotics as a live STEM experience. Through the robot Nezha, who appears as a new student and faces real challenges, the performance aims to show how sensors, algorithms, observation, testing, and debugging help a robot perceive its environment, follow a path, detect obstacles, and make decisions.

Why the Project is Innovative

The project is innovative because it connects theatrical storytelling with the real-time operation of a robot. Students embody Physics, Logic, and Technology-Robotics, translating complex STEM concepts into understandable stage experiences through humour, dialogue, and live demonstration. The performance explicitly presents the scientific process — observation, hypothesis, testing, and debugging — as theatre, making it highly experiential and interdisciplinary.

Project Description

The performance asks what happens when a robot becomes a student and science is transformed into theatre. It is a live STEM experience set in a school laboratory where Physics, Programming, and Robotics appear on stage. The robot Nezha is introduced as a new student and must face real challenges: finding its way, perceiving its environment, and making decisions. Through sensors and algorithmic thinking, it follows a route, detects obstacles, and reacts dynamically, showing that “intelligence” is not magic but the result of proper design. Through roles representing Physics, Logic, and Technology-Robotics, students translate complex ideas into understandable experiences using humour, sarcasm, and live dialogue.

Communication channels and communication methods used.

The school organized activities within the school community.

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 3:26:26 – 3:29:43.

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.24 “The Dream of the Parabola” by General Lyceum of Agia Triada

Nº of involved teachers: 2

Class: Lyceum: 11th Grade

Nº of involved students: 12

Different roles taken by students within the project: Aimilia Zouvernteanou and Melitini Stergiou performed the humorous introduction. The student group wrote the script. Sofia Pitsaki, Melitini Stergiou, and Theodora Petsi performed the choreography. Vasileios Gkolemis, Ioannis Lekkas, and Angelos Trimponias performed the live music and selected the background music. Sofia Pitsaki represented the students at the event.

Objective

The objective of the performance is to help students overcome fear of Mathematics by presenting mathematical functions and transformations through theatre, movement, rhythm, and language. In the dream of a student, the function comes alive and mathematical shifts are taught through a “mathematical hasapiko” dance. The performance aims to show that the mind learns better when it dreams and creates.

Why the Project is Innovative

The project is innovative because it combines Mathematics, Theatre, movement, music, and the French language in a STEAM approach. Mathematical concepts are transformed into choreography and rhythm, allowing students to experience functions physically and creatively. The project reframes Mathematics as something imaginative, embodied, and joyful rather than abstract or intimidating.

Project Description

The performance is an original project in which Mathematics meets Theatre and the French language. A function comes alive in a student's dream, and mathematical transformations are taught through a “mathematical hasapiko” dance. This interdisciplinary STEAM approach shows that the mind learns better when it dreams, turning fear of Mathematics into creative movement and rhythm.

Communication channels and communication methods used.

- *Facebook profile*
- *AI-powered podcast based on the script on the NotebookKLM platform*
- *School website*
- *Poster*
- *Brochure*
- *Local media*

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko>) that are free to use from other persons by giving the credits to the specific team that created the project.

[illegible]

Video of the performance available [here](#), from 3:35:17 – 3:46:52

For all the photos and the videos, Science View has the required consent from the students' parents.

Nº of involved teachers: 5

Class: Special Vocational Education and Training: 10th and 11th Grade

Nº of involved students: 8

Different roles taken by students within the project: Panagiota Kazelidou and Alexandros Ladas performed the humorous introduction. No additional student roles were specifically reported.

Objective

The objective of the performance is to present students making a collective decision about which type of seed to cultivate in the school greenhouse. Through the rehearsal and preparation of the performance, the project focuses on agriculture, choice, cooperation, and practical school-based learning.

Why the Project is Innovative

The project is innovative because it connects theatre with vocational, agricultural, and experiential education. The greenhouse becomes a learning environment where students engage with real-life decisions through dramatic action. The performance gives value to practical knowledge, collaboration, and inclusive participation, making science and cultivation part of a creative educational process.

Project Description

At E.E.E.E.K. Alexandria, the students rehearse for the performance they are preparing, titled The Magic Seeds. The central theme is the decision that the students are asked to make about which type of seed they will cultivate in the school greenhouse.

Communication channels and communication methods used.

- It was shared on social media, Facebook and Instagram, as well as on our school's official website.
- Posters were created and displayed outside the school, as well as at key locations throughout the city of Alexandria.
- Additionally, at the Easter bazaar organized by our students at City Hall, they handed out informational flyers to passersby about the performance and the history of seeds.

Are the results open source? If so, under which license?

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Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 3:46:54 – 3:58:24

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.26 “ $Romeo^2 + Juliet^2 = Love^2$ ” by Music School of Larissa — Lyceum

Nº of involved teachers: 3

Class: Lyceum: 10th and 11th Grade

Nº of involved students: 13

Different roles taken by students within the project: Anna Panagiotou wrote the humorous introduction. Eirini Kourti, Maria Moka, Anna Panagiotou, Panagiotis Panagoulis, and Raf Raftopoulou performed the humorous introduction. Anna Panagiotou directed the performance. The student group contributed to the set design and costumes. The choreography was conceived by the theatre group and performed by Maria Moka, Anna Panagiotou, and Raf Raftopoulou. Marilia Gioudi played the piano, Xanthippi Plitsi played the violin, Chrysa Anagnostou played the flute, Marilia Bakoula played the kanonaki, Panagiotis Panagoulis played the laouto, and Ariadni Tsiatsiani played the guitar. Anna Panagiotou and Panagiotis Panagoulis represented the students at the event.

Objective

The objective of the performance is to teach the Pythagorean theorem through a theatrical adaptation of the balcony scene from Romeo and Juliet. Romeo must calculate the length of the ladder, the hypotenuse, in order to climb to Juliet’s balcony. The performance aims to make a mathematical concept meaningful through a familiar dramatic situation.

Why the Project is Innovative

The project is innovative because it combines Shakespearean theatre, mathematics, music, humour, and original composition. The Pythagorean theorem is not presented as an isolated formula but as a practical problem within a love story. The use of live music, original music, choreography, and theatrical adaptation gives the mathematical concept emotional, artistic, and performative meaning.

Project Description

In the balcony scene from Romeo and Juliet, Romeo must apply the Pythagorean theorem in order to calculate how long the ladder, the hypotenuse, needs to be so that he can climb to the balcony and meet his beloved Juliet.

Communication channels and communication methods used.

- Social media (the school’s Facebook page, the Parents and Guardians Association’s Facebook page, the school’s YouTube channel), press release, post on the school’s website
- Poster, invitations, phone calls, school YouTube channel

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 3:58:25 – 4:18:07

For all the photos and the videos, Science View has the required consent from the students' parents.

3.2.27 “Vintage” by Junior High School of the Holy Metropolis of Piraeus

Nº of involved teachers: 1

Class: Lyceum: 10th and 11th Grade

Nº of involved students: 8

Different roles taken by students within the project: The student group wrote the script and prepared the costumes. Odysseas Drakopoulos composed the original music, contributed to the orchestration, and performed live guitar.

Objective

The objective of the performance is to explore technological evolution through the voices of old technological devices. In the waiting room of a robot psychologist specializing in computational empathy, a floppy disk, cassette, film camera, rotary telephone, and vinyl record come alive and express their memories, anxieties, and sense of abandonment in the modern digital world. The performance aims to reflect on memory, identity, technological progress, and the emotional dimension of obsolescence.

Why the Project is Innovative

The project is innovative because it personifies obsolete technologies and places them in a humorous group-therapy setting led by a robot psychologist. This allows students to examine technological progress through emotion, nostalgia, memory, and identity. The performance combines theatre, technology, humour, original music, and reflection on the relationship between past and present, showing that old technologies remain part of the foundation of today's digital world.

Project Description

The story takes place in the waiting room of a psychologist, a robot specializing in computational empathy 2.0. Old technological devices — a floppy disk, a cassette, a film camera, a rotary telephone, and a vinyl record — come alive and meet in a peculiar form of group therapy. Through humour, nostalgia, and emotion, they remember their own era, express the anxiety and sense of abandonment they experience in the modern digital world, and compare past ways of life with the present. With the help of the robot-psychologist, they come to recognize their value and contribution to technological evolution, realizing that, despite the passage of time, they form the foundation on which the modern world was built.

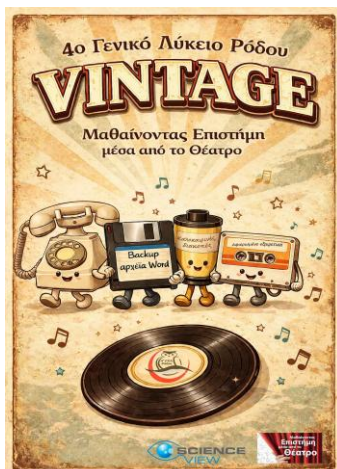
Communication channels and communication methods used.

Social media (Facebook)

Are the results open source? If so, under which license?

All the resources produced during this project are available upon request from the creators, the school team that is responsible for this production. Science View has uploaded several resources on the Learning Science Through Theater website (<https://lstt.eu/yliko>) that are free to use from other persons by giving the credits to the specific team that created the project.

Photos / Media Links



The photos of the performance are available here: <https://lstt.eu/diorganosh-2025-2026>.

Video of the performance available [here](#), from 4:18:10 – 4:35:25

For all the photos and the videos, Science View has the required consent from the students' parents.

4 Learning STEAM through Music (T3.3)

4.1 The Cyprus and Italy Experience (Inquiry Fuse & Materahub)

The “Learning STEAM through Music” module was implemented in Cyprus by Inquiry-Fuse and in Italy by Materahub.

The Italian implementation, led by Materahub, brought together students from different educational and artistic study pathways, (Visual Arts, Architecture and Interior Design, Graphic Design, and Audiovisual and Multimedia), encouraging them to explore contemporary social and environmental challenges through music, sound design, visual storytelling, digital creativity, and interdisciplinary artistic experimentation. More than 50 students and over 10 teachers from Liceo Artistico Carlo Levi in Matera participated in the development of immersive audiovisual projects focused on sustainability, equality, social awareness, and emotional expression. Materahub further expanded the initiative by involving an additional 255 students and more than 20 teachers in dissemination, mentoring, and educational activities carried out between March and April in collaboration with local schools and educational communities in Gravina di Puglia. Through workshops, presentations, mentoring sessions, and collaborative exchanges with the teachers and students the project fostered wider engagement with STEAM education, artistic experimentation, and active citizenship. Throughout the programme, mentors and experts provided ongoing guidance to support participants in developing their interdisciplinary STEAM projects, from the initial brainstorming and conceptual phase to the final audiovisual and artistic productions. The mentorship activities created a supportive and collaborative environment where teachers and students worked closely together during both group activities and more personalised support moments, allowing each team to develop its own creative process and strengthen technical, artistic, and communication competences throughout the implementation of the modules.

The Cyprus implementation, led by Inquiry Fuse, engaged students and teachers from two schools representing different age groups and educational contexts: Pascal International School in Nicosia (Year 5, upper primary) and the Secondary School of Panagia Theoskepasti in Paphos, bringing together 36 students and 7 teachers from STEAM disciplines including ICT, mathematics, physics, primary education, and music. Both schools were supported through a structured and sustained mentorship programme running from January to May 2026, combining three full-day on-site workshops, weekly online sessions, regular school visits, and individual one-to-one meetings with teachers and student teams, ensuring that every group received continuous, personalised guidance from the initial concept stage through to their final public performance.

In both countries, the implementation followed a similar approach. Students were introduced to sound, the physics of sound, artificial intelligence, and machine learning, with particular attention given to explaining how these technologies function before applying them within artistic and educational projects. Although centred on music and audiovisual creation, the projects also integrated narrative construction, symbolic representation, sound composition, digital editing, and visual communication. Through this process, students transformed scientific and social themes into immersive artistic experiences capable of generating emotional impact and public reflection.

The Italian music projects explored themes connected to the United Nations 2030 Agenda for Sustainable Development, including inequality, climate change, gender equality, emotional isolation, environmental sustainability, overconsumption, prejudice, and social exclusion. Students approached these topics through symbolic imagery, experimental sound narratives, cinematic references,

metaphorical storytelling, and immersive audiovisual compositions. Many projects combined minimalist visual language with emotionally charged soundscapes, inviting audiences not only to understand issues intellectually, but also to experience them emotionally.

The Cyprus projects approached complementary themes: secondary school students transformed scientific and social datasets into original music compositions through data sonification, while primary school students explored natural phenomena — solar eclipses, volcanic eruptions, tsunamis, thunderstorms, and ocean waves — through songs, choreography, sign language poetry, and live visual art. In both countries, the ambition was the same: to make the invisible audible, and the abstract experiential.

Particular attention was given to the relationship between sound and meaning. Italian students experimented with rhythm, silence, repetition, distortion, and contrast as narrative tools capable of translating abstract social tensions into artistic experiences. In several projects, sound became a metaphor for pressure, exclusion, collapse, and memory, demonstrating how music and sound design can function as powerful educational and communicative instruments within STEAM learning environments. Cypriot students, working with data sonification tools and AI-assisted composition platforms, experimented with translating numerical variables into pitch, tempo, rhythm, and timbre, discovering that every mapping decision is simultaneously a scientific and artistic choice.

The Italian projects were presented as part of the broader activities connected to the STEAM Innovation initiative, creating a space where artistic expression and social awareness could coexist within an educational context. Through videos and multimedia narratives, students developed productions combining artistic experimentation with civic engagement. The Cyprus projects were presented at two public showcase events: "The Sound of Science — Students Transform Data into Music", held at the Paphos Municipality Hall, and "Show Must STEAM On", held at Pascal International School in Nicosia. These events brought student work before their communities and transformed scientific and artistic learning into acts of public participation.

The final STEAM Innovation projects developed by students in Italy and Cyprus are presented in the next pages of the Anthology.

4.2 Italian Project Showcase

4.2.1 "The Elastic Barrier" by Team C Liceo Artistico Carlo Levi, Matera

Nº of involved teachers: 1

Class: High School – Third Year (students aged 15–16)

Nº of involved students: 6

Different roles taken by students within the project: The students collaboratively contributed to the conceptual development of the project, the creation of the sound narrative, and the visual construction of the final audiovisual production. The group worked together on the symbolic representation of borders and inequality, experimenting with contrasting sound textures, fragmented rhythms, and immersive transitions. Students participated in soundtrack selection, sound editing, visual composition, video montage, and dissemination of the final work through digital presentations and public sharing activities. The project encouraged collaborative reflection on exclusion, identity, and social inequality through artistic and musical experimentation.

Objective

The project explores the concept of borders and social inequality through immersive sound design and symbolic narration.

Why the Project is Innovative

The project is innovative because it transforms the abstract concept of inequality into an immersive emotional and sensory experience through interdisciplinary artistic experimentation. By combining symbolic audiovisual narration, fragmented sound design, rhythmic contrast, and collaborative creative processes, the students explored how music and visual storytelling can communicate social exclusion beyond traditional verbal explanation. The integration of sound experimentation, digital editing, and emotional perception within a STEAM learning framework allowed students to connect artistic expression with social awareness and critical reflection.

Project Description

The work represents humanity as an elastic membrane that stretches under the pressure of inequality while still retaining the ability to welcome others. The project develops as an immersive audiovisual experience in which humanity is represented as an elastic membrane continuously stretched by inequality, exclusion, and social pressure. Through fragmented rhythms, distorted sound textures, abrupt visual transitions, and contrasting atmospheres, the students created a symbolic representation of social borders as both physical and emotional barriers. The progressive tension between sound accumulation and moments of silence reflects the instability generated by discrimination and division, while the elasticity of the central metaphor symbolises the possibility of resilience, inclusion, and collective coexistence. The work combines experimental sound design, visual storytelling, and symbolic narration to transform social inequality into a perceptible emotional experience capable of generating reflection and empathy.

Communication channels and communication methods used.

The project was promoted through school presentations, social media sharing, digital dissemination, classroom discussions, and public screenings within the school community.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the educational teams involved in the initiative.

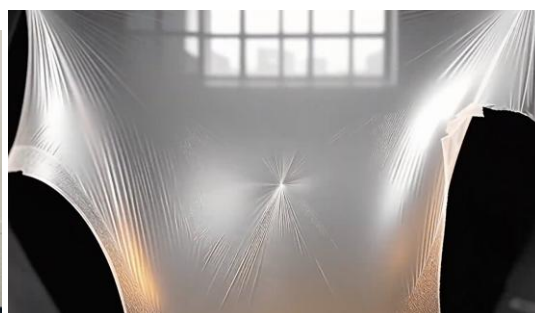
Photos / Media Links

The video of the performance as well as photos are available here:

[Team Barriera Elastica](#)

[la barriera elastica.mp4](#)

For all the photos and the videos, Materahub has the required consent from the students' parents.



4.2.2 "Tabula Rasa" by Team G Liceo Artistico Carlo Levi, Matera

Nº of involved teachers: 1
Class: High School – Third Year (students aged 15–16)
Nº of involved students: 5

Different roles taken by students within the project: The students contributed collectively to the visual concept, narrative structure, and digital editing of the project. The group worked on symbolic representations of climate change and glacier melting through AI-generated imagery, visual fading techniques, and minimalist narration. Students participated in image selection, visual composition, editing transitions, soundtrack integration, and dissemination of the final audiovisual work. The project promoted artistic experimentation while encouraging reflection on environmental fragility and collective responsibility.

Objective

The objective of the project is to explore climate change and glacier melting through visual and emotional storytelling.

Why the Project is Innovative

The project is innovative because it combines AI-generated imagery, minimalist audiovisual language, and symbolic digital storytelling to transform climate change into an emotional and experiential narrative. The project integrates environmental reflection, digital creativity, and artistic experimentation within an interdisciplinary STEAM approach.

Project Description

The work presents frozen landscapes dissolving progressively into fragmented and unstable spaces through contrast and fading imagery. The project constructs a symbolic visual narrative in which glaciers, frozen landscapes, and natural environments progressively dissolve into unstable fragmented spaces. Through AI-generated imagery, fading techniques, minimalist sound textures, visual erosion, and gradual atmospheric transformation, the students represented climate change not only as an environmental crisis but also as a loss of memory, identity, and human connection with nature. The audiovisual composition evolves from stillness and visual purity towards fragmentation and disappearance, creating a growing sensation of instability and emptiness. By combining digital experimentation, symbolic editing, and emotional storytelling, the work invites the audience to reflect on ecological fragility and collective environmental responsibility.

Communication channels and communication methods used.

The project was promoted through school presentations, social media sharing, digital dissemination, classroom discussions, and public screenings within the school community.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the educational teams involved in the initiative.

Photos / Media Links

The video of the performance as well as photos are available here: [Team Tabula Rasa - Tabula Rasa Tabula Rasa video.mp4](#)

For all the photos and the videos, Materahub has the required consent from the students' parents.



4.2.3 "Punto Zero - Point Zero" by Team H Liceo Artistico Carlo Levi, Matera

Nº of involved teachers: 1
Class: High School – Third Year (students aged 15–16)
Nº of involved students: 8

Different roles taken by students within the project: The students collaboratively developed the narrative concept of the project, focusing on gender equality and social awareness. The group worked on visual storytelling through drawings, cinematic references, symbolic editing, and soundtrack construction. Students participated in montage creation, visual research, soundtrack selection, emotional pacing, AI-based text-to-audio soundtrack and sound generation, audio editing techniques (cutting, reverse, layering, fading and crossfading, pitch modulation, warping), effects processing, mixing, and digital dissemination. The project encouraged students to critically reflect on stereotypes, discrimination, and women's rights through artistic language and audiovisual expression.

Objective

The objective of the project is to address gender equality and the historical struggle for women's rights.

Why the Project is Innovative

The project is innovative because it combines cinema, documentary testimony, hand-drawn illustration, AI-assisted sound generation, and experimental audiovisual editing to address gender-based violence and women's rights through emotional storytelling. By integrating traditional artistic practices (there are two handmade drawings within the scenes) with contemporary digital technologies and immersive sound design, the students transformed social reflection into a multisensory educational experience capable of generating empathy, awareness, and critical discussion within a STEAM learning environment.

Project Description

The work combines visual references, symbolic transitions, cinematic fragments, and AI-generated sound design to portray oppression, resistance, and awareness. In the opening scene, featuring the image of a man dominating a table setting, the soundtrack includes the real testimony of a woman recounting how she was burned in front of her children by a violent husband. The project also incorporates scenes from the movies "C'è ancora domani" and "Mia", both representing male oppression and gender-based violence. In addition, two hand-drawn artworks created by one of the group members depict scenes of domestic violence, reinforcing the emotional and symbolic impact of the narrative. Through audiovisual editing, experimental soundtrack creation, and contemporary digital artistic practices, students explored emotional narration and social awareness.

Communication channels and communication methods used.

The project was promoted through school presentations, social media sharing, digital dissemination, classroom discussions, and public screenings within the school community.

Are the results open source? If so, under which license?

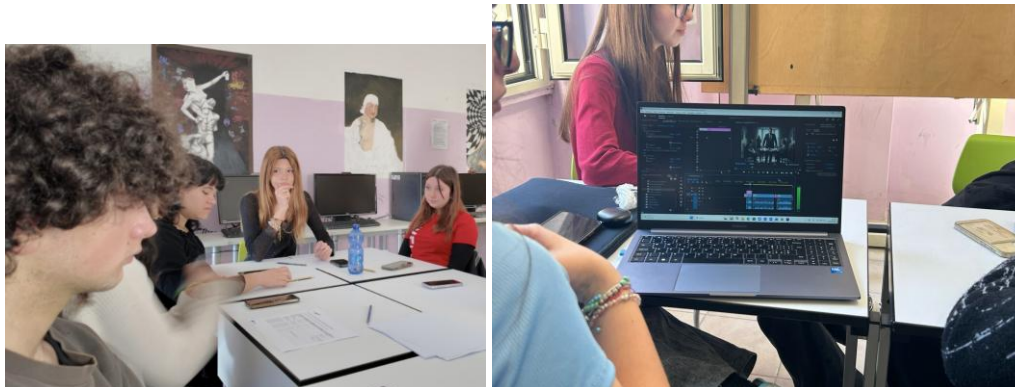
The resources produced during this project are available upon request from the creators and the educational teams involved in the initiative.

Photos / Media Links

The video of the performance as well as photos are available here: [Team Punto Zero](#)

[Punto Zero final.mp4](#)

For all the photos and the videos, Materahub has the required consent from the students' parents.



4.2.4 "The Grinder – The Burden of Privilege" by Team E - The Butchers, Liceo Artistico Carlo Levi, Matera

Nº of involved teachers: 1

Class: High School – Third Year (students aged 15–16)

Nº of involved students: 5

Different roles taken by students within the project: The students contributed to the symbolic construction of the project through sound experimentation, visual metaphor, and digital editing. The group collaboratively developed the mechanised audiovisual narrative representing inequality and privilege as a repetitive and oppressive system. Students participated in sound design, rhythmic sequencing, symbolic composition, and dissemination activities connected to the final production. The project promoted critical discussion about social injustice and the emotional impact of inequality.

Objective

The objective of the project is to represent social inequality as a mechanism that consumes fragility in order to sustain privilege.

Why the Project is Innovative

The project is innovative because it uses mechanisation, sound saturation, symbolic repetition, and immersive audiovisual pressure as artistic strategies to represent systems of inequality and exploitation. Through experimental sound design, aggressive rhythmic structures, and emotionally unsettling visual composition, the students transformed social imbalance into a sensory experience that encourages critical reflection on privilege, power, and exclusion. The project combines artistic experimentation, emotional communication, and social analysis within an interdisciplinary STEAM framework.

Project Description

The audiovisual work portrays inequality as a relentless industrial mechanism that consumes vulnerability in order to preserve systems of privilege and power. The repetitive audiovisual patterns symbolise the cyclical mechanisms of exclusion and the exploitation of the poorest and most

vulnerable members of society, trapped within systems that continuously reproduce inequality. In contrast, the aggressive barking of the dog becomes a symbolic representation of dominance, privilege, and the oppressive emotional weight imposed by the wealthiest social groups. The work combines symbolic narration, experimental sound design, and mechanised visual language to transform privilege and inequality into a disturbing immersive experience capable of generating critical reflection on contemporary social systems.

Communication channels and communication methods used.

The project was promoted through school presentations, social media sharing, digital dissemination, classroom discussions, and public screenings within the school community.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the educational teams involved in the initiative.

Photos / Media Links

The video of the performance as well as photos are available here:

[Team The Butchers -](#)

[VID-20260418-WA0004.mp4](#)

For all the photos and the videos, Materahub has the required consent from the students' parents.



4.2.5 "La scala interrotta - The Broken Staircase" by Team B, Liceo Artistico Carlo Levi, Matera

Nº	of	involved	teachers:	1
Class:	High School	– Third Year	(students aged	15–16)
Nº of involved students: 6				

Different roles taken by students within the project: The students were actively involved in the design of the project's rhythmic and visual structure, contributing to the creation of layered sound sequences inspired by repetition, accumulation, and collapse. The group collaboratively explored the concept of social imbalance through sound saturation and progressive rhythmic tension. Students worked on

sound recording, editing, montage, visual timing, and narrative pacing in order to transform inequality into a perceptible audiovisual experience. The final production emerged from a shared creative process focused on cooperation, experimentation, and critical reflection.

Objective

The objective of the project is to reflect on imbalance and inequality through sound accumulation and rhythm.

Why the Project is Innovative

The project is innovative because it translates social imbalance and unequal opportunity into rhythmic structures, sound accumulation, and audiovisual collapse. Through layered sound composition, repetition, symbolic pacing, and immersive editing techniques, the students transformed abstract social dynamics into a perceptible emotional experience. The project combines music experimentation, visual storytelling, and symbolic narration to explore inequality through an interdisciplinary STEAM approach centred on creativity and emotional engagement.

Project Description

The project develops through layered footsteps, repetitive rhythmic structures, fragmented melodies, and progressively increasing sound pressure until the entire audiovisual structure symbolically collapses. The staircase becomes a metaphor for social systems built on imbalance, accumulation, and unequal access to opportunity. Through repetition, rhythmic tension, sound saturation, and carefully synchronised visual pacing, the students transformed inequality into an immersive sensory experience. The gradual breakdown of harmony and structure symbolises the fragility of systems that concentrate privilege without redistribution or solidarity. Combining experimental sound composition, montage techniques, and symbolic storytelling, the work encourages reflection on instability, exclusion, and social fragmentation.

Communication channels and communication methods used.

The project was promoted through school presentations, social media sharing, digital dissemination, classroom discussions, and public screenings within the school community.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the educational teams involved in the initiative.

Photos / Media Links

The video of the performance as well as photos are available here:

[Team - Scala Interrotta](#)

[Scala Interrotta.mp4](#)

For all the photos and the videos, Materahub has the required consent from the students' parents.



4.2.6 "Il Respiro della Terra - The Breath of the Earth" by Team Power, Liceo Artistico Carlo Levi, Matera

Nº of involved teachers: 1
Class: High School – Third Year (students aged 15–16)
Nº of involved students: 7

Different roles taken by students within the project: The students collaborated in the development of the environmental concept, the creation of the sound narrative, and the visual editing of the final production. The group experimented with natural soundscapes, digital contrasts, and symbolic imagery to represent the “breath” of the Earth and the disruption caused by human activity. Students participated in soundtrack composition, audio layering, digital editing, visual sequencing, and dissemination of the project through school presentations and online communication channels. The creative process encouraged environmental awareness and interdisciplinary artistic exploration

Objective

The objective of the project is to raise awareness about environmental imbalance and climate pressure on the planet.

Why the Project is Innovative

The project is innovative because it combines environmental awareness, immersive sound storytelling, symbolic imagery, and digital audiovisual experimentation to represent the relationship between humanity and the planet. By transforming environmental imbalance into rhythm, sound disruption, and visual contrast, the students explored climate pressure through emotional perception rather than scientific explanation alone. The integration of ecological reflection, sound design, and artistic expression reflects the interdisciplinary and experiential nature of STEAM education.

Project Description

The project represents the Earth as a living organism whose natural breathing rhythm is progressively interrupted by destructive human activity and environmental imbalance. Through immersive natural

soundscapes, layered audio compositions, symbolic visual imagery, and contrasting digital atmospheres, the students created an emotional narrative centred on climate pressure and ecological fragility. Moments of harmony inspired by nature gradually evolve into chaotic sonic distortions and visual disruption, symbolising pollution, environmental exploitation, and the loss of equilibrium between humanity and the planet. The audiovisual composition combines environmental reflection, artistic experimentation, and sound storytelling to encourage emotional engagement with sustainability and collective ecological responsibility.

Communication channels and communication methods used.

The project was promoted through school presentations, social media sharing, digital dissemination, classroom discussions, and public screenings within the school community.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the educational teams involved in the initiative.

Photos / Media Links

The video of the performance as well as photos are available here:

[Team Power - Il respiro della terra](#)

[Il respiro della Terra Team Power A.mp4](#)

For all the photos and the videos, Materahub has the required consent from the students' parents.



4.2.7 "La solitudine accompagnata - The accompanied solitude" by Team D, Liceo Artistico Carlo Levi, Matera

Nº	of	involved	teachers:	1
Class:	High School	– Third Year	(students aged	15–16)
Nº of involved students: 6				

Different roles taken by students within the project: The students collaboratively explored themes of emotional isolation and social disconnection through visual composition and symbolic narration. The group worked on photographic framing, emotional atmosphere, soundtrack selection, and visual storytelling in order to communicate distance and vulnerability. Students participated in video editing,

scene construction, sound integration, and dissemination of the final project within the school community. The project encouraged reflection on mental wellbeing, empathy, and interpersonal relationships.

Objective

The objective of the project is to explore emotional isolation and invisible loneliness within contemporary society.

Why the Project is Innovative

The project is innovative because it explores emotional isolation and mental wellbeing through minimalist audiovisual storytelling, symbolic visual composition, and emotionally immersive atmospheres. Rather than using direct narration, the students relied on one image, visual distance, pacing, and sound textures to communicate invisible emotional conditions.

Project Description

The work portrays a young individual physically surrounded by others yet emotionally disconnected from the surrounding social environment. Through silence, slow pacing, photographic framing, subdued soundscapes, and visual distance, the students represented vulnerability, emotional fragility, and the difficulty of interpersonal communication in modern society. The audiovisual narrative transforms solitude into a perceptible emotional condition, encouraging empathy and reflection on mental wellbeing, social disconnection, and the hidden forms of loneliness that often remain invisible in everyday life.

Communication channels and communication methods used.

The project was promoted through school presentations, social media sharing, digital dissemination, classroom discussions, and public screenings within the school community.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the educational teams involved in the initiative.

Photos / Media Links

The video of the performance as well as photos are available here:

[Team Lonely - La solitudine accompagnata](#)

[copy_E0117796-C2D8-42DB-AD5D-3B6DCC0EF90A.mov](#)

For all the photos and the videos, Materahub has the required consent from the students' parents.



4.2.8 "Gli Spregiudicati- The Unconventional Ones" by Team L, Liceo Artistico Carlo Levi, Matera

Nº of involved teachers: 1
Class: High School – Third Year (students aged 15–16)
Nº of involved students: 7

Different roles taken by students within the project: The students collaboratively developed the project through symbolic visual language, metaphorical storytelling, and sound experimentation. The group explored gender inequality through animations, visual contrasts, fragmented imagery, and emotionally charged soundscapes. Students participated in script conceptualisation, soundtrack construction, digital montage, visual sequencing, and communication activities related to the dissemination of the work. The project encouraged critical reflection on prejudice, opportunity, and the social expectations imposed on women.

Objective

The objective of the project is to examine gender inequality and the invisible barriers faced by women.

Why the Project is Innovative

The project is innovative because it combines cinematic references, AI-generated imagery, symbolic audiovisual narration, and emotionally charged sound experimentation to explore gender inequality and social expectations imposed on women. By reinterpreting scenes inspired by animated cinema through contemporary digital artistic practices, the students created a narrative that connects popular culture, identity, and social reflection.

Project Description

The project examines gender inequality and the invisible barriers faced by women. Inspired by the Disney animated film *Mulan*, particularly the scenes in which the protagonist disguises herself as a man in order to enter the army and gain social recognition, the students explored the pressures, limitations,

and expectations historically imposed on women within society. The project combines fragments from the animated film with AI-generated images and digitally manipulated visual sequences, creating a contrast between traditional representations and contemporary reflections on identity, discrimination, and empowerment. Through montage techniques, layered soundscapes, symbolic transitions, and visual transformation, the students constructed an immersive narrative centred on prejudice, resistance, and the struggle for equal opportunities. The audiovisual composition encourages the audience to emotionally experience the tension between invisibility and recognition, transforming social reflection into a contemporary artistic experience.

Communication channels and communication methods used.

The project was promoted through school presentations, social media sharing, digital dissemination, classroom discussions, and public screenings within the school community.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the educational teams involved in the initiative.

Photos / Media Links

The video of the performance as well as photos are available here:

[Team spregiudicati - fare il doppio per la metà](#)

[VID-20260510-WA0020 \(1\).mp4](#)

For all the photos and the videos, Materahub has the required consent from the students' parents.



4.2.9 "Il suono degli scarti - Tech & Plastic – The Noise of Waste " by Team I, Liceo Artistico Carlo Levi, Matera

Nº	of	involved	teachers:	1
Class:	High School	– Third Year	(students aged	15–16)
Nº of involved students: 6				

Different roles taken by students within the project: The students collaborated in the creation of the project's futuristic visual identity and fragmented sound narrative. The group experimented with glitch aesthetics, digital distortion, electronic sound layering, and symbolic editing techniques in order to represent technological overload and environmental collapse. Students participated in soundtrack construction, digital montage, image manipulation, visual sequencing, AI creation and dissemination of the final production through final presentations. The project encouraged students to critically reflect on overconsumption, waste, and the relationship between technology and sustainability.

Objective

The objective of the project is to reflect on technological excess, plastic consumption, and environmental collapse.

Why the Project is Innovative

The project is innovative because it combines glitch aesthetics, digital fragmentation, electronic sound manipulation, and symbolic audiovisual collapse to represent overconsumption and environmental degradation. The project integrates environmental awareness, digital creativity, and artistic experimentation within a STEAM framework focused on critical reflection and sustainability.

Project Description

The project develops as a dystopian audiovisual journey in which technological excess, plastic overconsumption, and environmental collapse are represented through glitch aesthetics, digital fragmentation, electronic sound layering, and progressive visual disintegration. The students created a futuristic sensory environment characterised by hypnotic technological order that gradually deteriorates into chaos and environmental emptiness. The work symbolises the destructive consequences of uncontrolled consumption and technological dependency. The audiovisual composition combines experimental editing and symbolic narration to provoke critical reflection on sustainability, waste production, and humanity's relationship with technology.

Communication channels and communication methods used.

The project was promoted through school presentations, social media sharing, digital dissemination, classroom discussions, and public screenings within the school community.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the educational teams involved in the initiative.

Photos / Media Links

The video of the performance as well as photos are available here:

[Team - Gli sprechi](#)

[Progetto sprechi \(2\).mp4](#)

For all the photos and the videos, Materahub has the required consent from the students' parents.



4.2.10 "Different shells - same hearts" by Team F, Liceo Artistico Carlo Levi, Matera

Nº of involved teachers: 1
Class: High School – Third Year (students aged 15–16)
Nº of involved students: 6

Different roles taken by students within the project: The students worked collaboratively on the creation of the visual metaphor at the centre of the project, using symbolic objects and minimalist sound design to address prejudice and discrimination. The group developed the audiovisual narrative through filming, sound recording, editing, and symbolic composition. Students participated in the conceptual design of the project as well as in the dissemination of the final video presentation. The project encouraged reflection on identity, diversity, and equality through simple but emotionally powerful imagery.

Objective

The objective of the project is to challenge prejudice and stereotypes linked to identity, nationality, and appearance.

Why the Project is Innovative

The project is innovative because it transforms a simple "Egg" into a powerful symbolic reflection on prejudice, diversity, and shared humanity through minimalist audiovisual storytelling. The project demonstrates how artistic experimentation and symbolic representation can support empathy, inclusion, and active citizenship within STEAM education.

Project Description

The project uses the symbolic image of eggs painted with different national flags to explore prejudice, discrimination, identity, and shared humanity. Through minimalist visual language, close-up cinematography, symbolic gestures, and delicate sound design, the students constructed an emotionally powerful metaphor in which external differences disappear once the shells are broken, revealing the same human essence beneath superficial identities. The audiovisual narrative transforms a simple everyday object into a reflection on equality, diversity, migration, and social inclusion. Through symbolic composition, visual simplicity, and emotional pacing, the project encourages the audience to question stereotypes and recognise the common humanity shared across cultures, appearances, and nationalities.

Communication channels and communication methods used.

The project was promoted through school presentations, social media sharing, digital dissemination, classroom discussions, and public screenings within the school community.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the educational teams involved in the initiative.

Photos / Media Links

The video of the performance as well as photos are available here:

[Team Eggs - Different Shells, Same hearts](#)

[video Uova Team F.mov](#)

For all the photos and the videos, Materahub has the required consent from the students' parents.



4.3 Cyprus Project showcase

4.3.1 "Lumen & Shadow —Aligned" by Pascal International School, Nicosia

Nº of involved teachers: 3 main teachers (class teacher, STEAM teacher, music teacher)

Class: Year 5, upper primary

Nº of involved students: 4

Different roles taken by students within the project: Songwriters & composers, Performers & vocalists, Narrators, Stage coordinators

Objective

The objective of this project was to explore the natural phenomenon of the solar eclipse and to express its essential scientific and sensory qualities through an original song composed and performed entirely by the students. The team aimed to communicate to their audience — through music, voice, and embodied performance — the gradual fading of light, the moment of totality, and the slow return of day that define a solar eclipse. The project connected physics (the mechanics of eclipse formation), music composition, creative writing, and public performance within a single integrated STEAM experience.

Why the Project is Innovative

The project is innovative because it does not illustrate the solar eclipse — it inhabits it. The students did not create a poster or a diagram of what happens during an eclipse; they composed an original song, titled 'Aligned', that makes the phenomenon felt by the audience through sound, rhythm, and performance. The choice of musical dynamics — a gradual dimming of energy during the approach to totality, a moment of suspended stillness, and a slow return of brightness in the resolution, mirrors the actual physical experience of witnessing an eclipse. This isomorphism between the scientific phenomenon and the musical structure is what makes the project genuinely interdisciplinary rather than merely themed. The project also demonstrates the creative and scientific capacity of Year 5 primary students, who not only understood the mechanics of eclipse formation but translated that understanding into an original artistic work.

Project Description

The four students of Lumen & Shadow began by studying the mechanics of the solar eclipse: how the alignment of the Earth, Moon, and Sun produces totality; how light gradually fades as the Moon's shadow advances; and what the experience of witnessing a total eclipse looks, sounds, and feels like. They used scientific videos, texts, and discussions with their STEAM teacher to develop a thorough understanding of the phenomenon.

They then moved into the creative phase, writing the song 'Aligned'. The lyrics were crafted to reflect the scientific narrative of the eclipse — beginning with the ordinary brightness of day, moving through the gradual, uncanny dimming that precedes totality, pausing at the moment of complete darkness when 'the world holds its breath', and resolving with the return of light. The music was composed to mirror this arc: opening with brightness and energy, becoming quieter and more suspended as the performance reached its centre, and recovering its brightness in the final moments.

The students rehearsed their performance over multiple sessions under the guidance of their music teacher and class teacher, refining both the vocal performance and the stage presence. The final performance was presented as part of the 'Show Must STEAM On' showcase at Pascal International School, where Lumen & Shadow opened the evening, setting the tone for the full programme of performances.

Communication channels and communication methods used.

- Live performance at 'Show Must STEAM On', Pascal International School, Nicosia, in front of parents, teachers, evaluators, and the school community.
- Social media links to be added once published by Inquiry Fuse.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the education.

Photos / Media Links

Link to the projects folder: [Here](#)



4.3.2 "Thunderstorm, A Sign Language Poetry and Choreography Performance" by Pascal International School, Nicosia

Nº of involved teachers: 3 main teachers (class teacher, STEAM teacher, music teacher)

Class: Year 5, upper primary

Nº of involved students: 3

Different roles taken by students within the project: Poet & lyricist, Choreographer, Sign language performer & artistic director.

Objective

The objective of this project was to explore the natural phenomenon of a thunderstorm and to express its scientific and sensory qualities through an original combination of poetry, sign language, and choreography. The team aimed to demonstrate that scientific phenomena can be communicated through the body and the hands as powerfully as through words or sound, and to make the performance accessible to audiences with hearing impairments by centering sign language as an expressive medium rather than a translation device. The project connected meteorology, creative writing, music, sign language, and physical performance.

Why the Project is Innovative

The project is innovative in its choice of sign language as a primary artistic medium. Rather than adding sign language as an accessibility overlay to a spoken or sung performance, The Lightning Dolls placed sign language at the centre of their artistic concept — using it as a visual and physical language for expressing the movement, energy, and drama of a storm. The choreographic integration of signed poetry and physical movement created a performance that communicated the phenomenon through multiple simultaneous channels: the sound and rhythm of the spoken poem, the visual language of the signs, and the kinetic energy of the choreographed movement. The project also demonstrates genuine scientific understanding: the sequence and quality of the movements and signs reflected accurate knowledge of how a thunderstorm builds, peaks, and dissipates.

Project Description

The three students of The Lightning Dolls began by studying the meteorological science of thunderstorms: how electrical charge builds in clouds, how lightning forms and discharges, how thunder is produced by the rapid heating and expansion of air, and how storms develop, intensify, and pass. They used scientific sources and discussions with their teachers to develop a thorough understanding of the phenomenon at an age-appropriate level.

They then moved into the creative phase, writing an original poem about a thunderstorm that captured both its physical properties and its emotional impact — the tension of the approaching storm, the explosive intensity of lightning and thunder, and the gradual quieting as the storm passes. The poem was crafted with attention to rhythm and sound, so that it could be performed expressively.

Students learned and choreographed sign language interpretations for key moments and images in the poem, working with their class teacher and researching sign language resources. They then rehearsed the integration of speech, sign, and movement, developing a performance in which all three elements worked simultaneously and reinforced each other. The final performance was presented at 'Show Must STEAM On' at Pascal International School.

Communication channels and communication methods used.

- Live performance at 'Show Must STEAM On', Pascal International School, Nicosia, in front of parents, teachers, evaluators, and the school community.
- Social media links to be added once published by Inquiry Fuse.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the education.

Photos / Media Links

Link to the projects folder: [Here](#)



4.3.3 "Volcanic Eruption, A Physical and Musical Performance of Geological Power" by Pascal International School, Nicosia

Nº of involved teachers: 3 main teachers (class teacher, STEAM teacher, music teacher)

Class: Year 5, upper primary

Nº of involved students: 4

Different roles taken by students within the project: Scientific researcher, Music composer, Choreographer, Stage director & performer.

Objective

The objective of this project was to explore the natural phenomenon of a volcanic eruption and to communicate its scientific properties — the buildup of geological pressure, the rise of magma, and the explosive moment of eruption — through a precisely timed physical performance combining movement, rhythm, and music. The team aimed to create a performance in which the students' bodies became the volcano, their choreography became the science, and the music became the emotional and sensory expression of geological force.

Why the Project is Innovative

The project is innovative in its use of the human body as a scientific instrument. Crimson Glory did not represent the volcanic eruption through a model, a diagram, or a narration — they became it. The choreography was designed to embody the actual physical sequence of a volcanic eruption: the slow, pressurised stillness of the pre-eruption phase; the building intensity as magma rises; and the explosive, precisely synchronised release of the eruption itself. The integration of music into the performance — with rhythmic and dynamic choices aligned to the scientific sequence of events — created a performance that was simultaneously scientifically accurate and aesthetically powerful. The precision of the team's collective synchronisation was noted by the evaluators as one of the most striking qualities of the performance.

Project Description

The four students of Crimson Glory began by studying the geology of volcanic eruptions: the structure of the Earth's crust, the formation of magma in the mantle, the mechanics of pressure buildup, and the different types and stages of volcanic eruption. They focused particularly on the temporal sequence of an eruption — from the earliest signs of seismic activity through to the moment of explosion and the subsequent flow of lava — as this sequence would become the structure of their performance.

Students then developed their choreography, mapping each stage of the eruption onto a physical movement vocabulary. The pre-eruption phase was expressed through slow, controlled, rooted movements — the body heavy and still, energy contained. The approach to eruption was expressed through increasing physical tension and dynamism. The eruption itself was expressed through a precisely synchronised collective movement — explosive, fully committed, and immediately powerful. The aftermath was expressed through a gradual release and stillness.

Music was composed and integrated to support and amplify each phase of the choreography, with rhythmic intensity and dynamic level tracking the scientific sequence of the eruption. The final performance was presented at 'Show Must STEAM On' at Pascal International School, where Crimson Glory's performance was described in the script as conveying 'risk, control, and presence from the first second'.

Communication channels and communication methods used.

- Live performance at 'Show Must STEAM On', Pascal International School, Nicosia, in front of parents, teachers, evaluators, and the school community.
- Social media links to be added once published by Inquiry Fuse.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the education.

Photos / Media Links

Link to the projects folder: [Here](#)



4.3.4 "Tsunami and the Aurora — Tidal's Crew" by Pascal International School, Nicosia

Nº of involved teachers: 3 main teachers (class teacher, STEAM teacher, music teacher)

Class: Year 5, upper primary

Nº of involved students: 4

Different roles taken by students within the project: Scientific researcher, Visual artist & live painter, Lighting & fabric designer, Narrator & stage director

Objective

The objective of this project was to explore two contrasting natural phenomena — the tsunami and the aurora borealis — and to communicate the difference between sudden, destructive force and quiet, luminous harmony through the medium of live visual art. Students aimed to create a painting on stage in real time, using white fabric and lighting to show the movement of water from stillness to overwhelming force and back again to natural balance. The project connected oceanography, atmospheric science, visual art, lighting design, and live performance.

Why the Project is Innovative

The project is innovative in its choice of live visual art as its primary medium. Unlike the other primary school teams who used music, movement, or language, Tidal's Crew created their performance through the act of painting — producing a visual work in real time on stage, in front of the audience, using fabric and light rather than canvas and paint. This process made the artistic creation itself part of the performance, giving the audience access to the transformation of materials as it happened rather than presenting a finished product. The deliberate contrast between the two phenomena — the violence of the tsunami and the stillness of the aurora — gave the performance a structural and emotional arc that reflected genuine scientific understanding of the different ways in which natural forces can operate.

Project Description

The four students of Tidal's Crew began by studying both phenomena: the oceanographic science of tsunamis — how they are generated by seismic events on the ocean floor, how they travel, and how they arrive with devastating force — and the atmospheric science of the aurora borealis — how solar

wind particles interact with the Earth's magnetic field to produce the characteristic luminous patterns of the northern lights.

Students then developed their performance concept: a live painting using white fabric and dynamic lighting that would represent first the ocean at rest, then the gathering of seismic energy beneath the surface, then the approach and impact of the tsunami, and finally the transition to the calm glow of the aurora. The use of white fabric allowed light to become colour, enabling the lighting design to carry much of the visual storytelling — blue-grey for the ocean, dark and turbulent for the tsunami, and luminous green and purple for the aurora.

The performance was choreographed so that the students' physical movements with the fabric were timed to music that tracked the emotional arc of the two phenomena. The final presentation at 'Show Must STEAM On' was described in the script as showing 'how destruction and beauty can exist together — how a tsunami can rise, while the aurora reminds us of balance and peace'.

Communication channels and communication methods used.

- Live performance at 'Show Must STEAM On', Pascal International School, Nicosia, in front of parents, teachers, evaluators, and the school community.
- Social media links to be added once published by Inquiry Fuse.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the education.

Photos / Media Links

Link to the projects folder: [Here](#)



4.3.5 "Waves, Aqua Blooms" by Pascal International School, Nicosia

Nº of involved teachers: 3 main teachers (class teacher, STEAM teacher, music teacher)

Class: Year 5, upper primary

Nº of involved students: 4

Different roles taken by students within the project: Music composers & songwriters, Choreographers, Performers & vocalists, Costume & visual designers

Objective

The objective of this project was to explore the physical phenomenon of ocean waves and to communicate their essential quality — continuous, rhythmic, never-ending motion — through an original music composition and choreography created entirely by the students. The team aimed to bring the sea and its waves to life on stage in a way that was both scientifically informed and artistically expressive, closing the evening's programme with a performance that captured the flow, resilience, and beauty of natural motion. The project connected wave physics, music composition, choreography, and public performance.

Why the Project is Innovative

The project is innovative in the precision with which the students translated the physical properties of waves into musical and choreographic choices. Wave motion is characterised by periodicity, rhythm, continuity, and the interplay of energy and form — qualities that lend themselves naturally to musical expression but require genuine scientific understanding to render accurately. Aqua Blooms' composition and choreography captured the cyclical nature of wave motion — the rise and fall, the rhythm within the rhythm, the sense of a force that never fully stops — in a way that reflected real knowledge of wave physics rather than a general impression of the sea. The decision to close the evening with this performance was also artistically and educationally deliberate: waves, as a phenomenon of continuous motion and resilience, served as a fitting metaphor for the journey the students had taken throughout the project.

Project Description

The four students of Aqua Blooms began by studying the physics of ocean waves: how waves are generated by wind energy transferring to the water surface, how they travel across the ocean, how their wavelength, frequency, and amplitude relate to each other, and how they behave as they approach and break on shore. They paid particular attention to the rhythmic and periodic nature of wave motion, which would become the structural foundation of their composition and choreography. Students composed an original song that captured the mood and movement of the sea — using rising and falling melodic lines to mirror the wave's arc, rhythmic patterns to convey periodicity, and dynamic variation (louder and softer passages) to suggest the energy of different wave types. The composition was designed to feel continuous, avoiding sharp endings or jarring transitions, so that the music itself embodied the quality of uninterrupted wave motion. The choreography was developed in parallel with the music, with physical movements designed to mirror and complement the musical structure — arms and bodies rising and falling, movements flowing into each other without breaking, the four students moving as a coordinated ensemble to suggest the coordinated energy of water in motion. The final performance at 'Show Must STEAM On' closed the evening, with the script noting that Aqua Blooms reminded the audience that 'nature is always alive — just like imagination'.

Communication channels and communication methods used.

- Live performance at 'Show Must STEAM On', Pascal International School, Nicosia, in front of parents, teachers, evaluators, and the school community.
- Social media links to be added once published by Inquiry Fuse.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the education.

Photos / Media Links

Link to the projects folder: [Here](#)



Cyprus Secondary school projects

The following four projects were developed by students of the Secondary School of Panagia Theoskepasti in Paphos, under the theme 'The Sound of Science — Students Transform Data into Music'. All four projects engaged with the data sonification process: students collected real-world datasets, developed mapping systems linking data variables to musical parameters, and produced original compositions using a combination of AI tools, programming, and musical knowledge.

4.3.6 “Data Symphony: Nike vs Adidas — Transforming Social Media Data into Music” by Secondary school of Panagia Theoskepasti

Nº of involved teachers: 4 main teachers (2 ICT teachers, 1 Mathematic teacher, 1 Physics teachers) and the Music teacher as consultant

Class: 2nd Class of Secondary school

Nº of involved students: 4

Different roles taken by students within the project: Data analyst, Music composer / AI prompt engineer, Video & visual designer, Presenter & communicator

Objective

The main goal of the project was to explore how global brands communicate emotions through social media, and how these emotions can be systematically transformed into music through the process of data sonification. Students aimed to demonstrate that data analysis is not only a mathematical and technological process but also a creative and artistic one — capable of producing aesthetic experiences that communicate meaning beyond numbers. The project addressed the intersection of data science, social media analytics, artificial intelligence, music composition, and digital storytelling.

Why the Project is Innovative

The project is innovative for several interconnected reasons. First, it applies data sonification to a domain — brand social media analytics — that is rarely explored in educational contexts, making it immediately relevant to students' everyday digital lives. Second, the mapping system developed by the students was not borrowed from an existing template but was designed by the team themselves: each metric was assigned a specific musical parameter through a process of deliberate artistic and scientific reasoning. Third, the project produced two entirely distinct musical identities for two well-known global brands, demonstrating that the same analytical framework can yield radically different aesthetic outcomes depending on the data. Fourth, the integration of AI-generated cinematic videos alongside the music created a genuinely multimodal audiovisual experience, going beyond composition alone into the territory of digital storytelling and brand communication.

Project Description

The project unfolded in four main stages. In the first stage, students collected and organised data from the Instagram accounts of Nike and Adidas, examining over 100 posts from each brand and recording key engagement metrics: likes, comments, shares, and audience sentiment (positive and negative reactions). Data was organised in Excel and visualised through charts and graphs to identify patterns in audience behaviour.

In the second stage, students developed a data-to-music mapping system. Each metric was assigned a musical parameter: likes corresponded to tempo (BPM), comments to melodic complexity, shares to beat intensity, positive audience sentiment to major musical scales, and negative sentiment to minor musical scales. This mapping system was designed to ensure that the musical output was directly and transparently traceable to the data — every musical choice had a scientific justification.

In the third stage, students used AI music generation tools to produce two compositions based on their mapping rules. Nike's higher engagement figures — more likes, comments, and shares, with stronger intensity and energy — produced a fast, energetic, and rhythmically dense composition. Adidas's more balanced and emotionally stable audience reactions produced a smoother, more melodically coherent piece with a calmer rhythmic profile.

In the fourth stage, students created AI-generated cinematic videos and visual materials to accompany each composition, producing a complete audiovisual presentation that invited the audience to experience data not only analytically but emotionally and aesthetically. The final message of the project was: 'We did not just analyse data — we transformed emotion into sound'.

Communication channels and communication methods used.

- Public showcase presentation at the Secondary School event 'The Sound of Science', held at Paphos Municipality Hall, in front of parents, teachers, evaluators, and the local community.
- Video presentations screened during the event, extending the reach of the project to a visual and non-specialist audience.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the educational teams involved in the initiative.

Photos / Media Links

Link to the projects folder: [Here](#)



4.3.7 “From Goals to Music” by Secondary school of Panagia Theoskepasti

Nº of involved teachers: 4 main teachers (2 ICT teachers, 1 Mathematic teacher, 1 Physics teachers) and the Music teacher as consultant

Class: 2nd Class of Secondary school

Nº of involved students: 4

Different roles taken by students within the project: Data collector & statistician, Python programmer, Music mapper & composer, Presenter & communicator

Objective

The main goal of the project was to demonstrate that numerical sports data can be transformed into an original musical composition through data sonification, using programming as the bridge between analysis and artistic output. Students aimed to give each of two world-famous football players — Lionel Messi and Cristiano Ronaldo — a distinct and data-justified musical identity, and to produce a MIDI composition for each player that made their career statistics audible and emotionally resonant. The project addressed the intersection of ICT, mathematics, music, sport science, and algorithmic thinking.

Why the Project is Innovative

The project stands out for its technical ambition and genuine interdisciplinarity. Rather than using an existing music generation tool, the students developed their own Python programme that reads data directly from an Excel spreadsheet and automatically generates a MIDI file — without relying on external libraries. This represents a genuine act of computational creativity: students designed and built their own instrument for transforming data into sound. The mapping system was also original and well-reasoned: instrument choice was justified by the playing styles of the athletes (piano for Messi's technical fluency, electric guitar and drums for Ronaldo's power and explosiveness), and note pitch within a C Major scale was determined by year-by-year goal counts, with the most prolific seasons reaching the highest notes. The project also produced a genuinely critical scientific insight: that data is never fully objective, because the assumptions embedded in the mapping system shape the musical outcome. This insight, arrived at by the students through the process of making, belongs as much to the philosophy of science as to music theory.

Project Description

The project proceeded through the following stages. In the first stage, students collected goal statistics for Lionel Messi and Cristiano Ronaldo for each year from 2012 to 2025, organising the data by year and by goal type (open play, penalties, headers) in an Excel spreadsheet. For goal types, students calculated estimated distributions based on historical career percentages, applying mathematical reasoning to fill gaps in publicly available data.

In the second stage, students designed a comprehensive data-to-music mapping system. Each player was assigned a distinct musical instrument: Messi was rendered through piano, chosen to reflect his technical fluency, melodic creativity, and smooth playing style; Ronaldo was rendered through electric guitar and drums, chosen to reflect his power, intensity, and explosive athleticism. Year-by-year total goal counts were mapped onto pitch within a C Major scale, with the highest-scoring years producing the highest notes. Goal types were mapped onto rhythm and dynamics: open play goals became fast melodic notes, penalties became strong and steady rhythmic accents, and headers became either low accompanying notes or powerful drum hits depending on the player.

In the third stage, students wrote a Python programme that read the Excel data and automatically generated MIDI files for each player. The programme was built without external libraries, requiring students to understand and implement MIDI file structure at a fundamental level. This stage involved multiple rounds of testing and refinement, with students adjusting the mapping rules based on what the music sounded like and whether it accurately reflected the data.

In the fourth and final stage, students prepared and delivered their public presentation, explaining both the scientific methodology and the artistic rationale behind each musical choice, and reflecting critically on what the process had revealed about the nature of data and its representation.

Communication channels and communication methods used.

- Public showcase presentation at the Secondary School event 'The Sound of Science', held at Paphos Municipality Hall, in front of parents, teachers, evaluators, and the local community.
- Video presentations screened during the event, extending the reach of the project to a visual and non-specialist audience.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the educational teams involved in the initiative.

Photos / Media Links

Link to the projects folder: [Here](#)



4.3.8 “The Music of Growth” by Secondary school of Panagia Theoskepasti

Nº of involved teachers: 4 main teachers (2 ICT teachers, 1 Mathematic teacher, 1 Physics teachers) and the Music teacher as consultant

Class: 2nd Class of Secondary school

Nº of involved students: 4

Different roles taken by students within the project: Data observer & analyst, Music mapper, AI composer, Video & visual editor / cinematic storyteller.

Objective

The main goal of the project was to explore whether the biological process of plant growth can be meaningfully transformed into a musical experience through data sonification. Students aimed to collect observable biological data from the growth of two different plants, develop a mapping system linking biological variables to musical parameters, and use AI tools to generate original compositions that expressed each plant's growth pattern as a distinctive musical identity. The project connected biology, data analysis, artificial intelligence, and music composition within a coherent STEAM framework.

Why the Project is Innovative

The project is innovative in its choice of subject matter and in the sophistication of its mapping system. Plant growth is rarely explored as a source of musical data in educational contexts, making the project genuinely original in its conception. The three-dimensional mapping system — linking height to melody and pitch, growth rate to tempo, and leaf density to sound layering — produced compositions that were not simply different in volume or speed but structurally distinct in their musical texture, reflecting genuine biological differences between the two plants. The decision to present the project as a cinematic storytelling performance — combining timelapse footage, data graphs, ambient sound, and AI-generated composition — transformed a scientific investigation into a multimodal narrative, demonstrating that data can be communicated through aesthetic experience as effectively as through charts and figures.

Project Description

Students began by selecting two plants with different growth patterns: a bean plant and a sunflower. Using timelapse video recordings of both plants growing, they extracted data on three variables at regular intervals: plant height, rate of height increases between intervals, and leaf density (estimated through visual observation of foliage coverage). This data was organised in a structured spreadsheet and visualised through graphs to identify patterns and differences between the two plants.

Students then developed a mapping system connecting each biological variable to a musical dimension. Plant height determined the melody and pitch of the composition, with taller growth stages corresponding to higher notes. Growth rate determined the tempo and rhythmic pace of the piece, with faster growth phases producing more energetic and rapid musical passages. Leaf density determined the layering and richness of the sound, with denser foliage producing more complex, multi-layered textures.

Using AI music generation tools, students produced two original compositions based on these mapping rules. The bean plant, which showed more consistent linear height increase, produced a gradual, clear, and progressively evolving melody. The sunflower, which developed denser foliage more rapidly, produced a richer, more dynamic, and texturally complex composition.

The final presentation was structured as a cinematic storytelling performance, combining timelapse footage of the plants growing, data graphs showing the variables over time, ambient environmental sound, and the two AI-generated compositions. The performance was designed to take the audience on a sensory and intellectual journey from raw biological observation to musical experience.

Communication channels and communication methods used.

- Public showcase presentation at the Secondary School event 'The Sound of Science', held at Paphos Municipality Hall, in front of parents, teachers, evaluators, and the local community.
- Video presentations screened during the event, extending the reach of the project to a visual and non-specialist audience.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the educational teams involved in the initiative.

Photos / Media Links

Link to the projects folder: [Here](#)



4.3.9 “The Rhythm of Space — Artemis 4” by Secondary school of Panagia Theoskepasti

Nº of involved teachers: 4 main teachers (2 ICT teachers, 1 Mathematic teacher, 1 Physics teachers) and the Music teacher as consultant

Class: 2nd Class of Secondary school

Nº of involved students: 4

Different roles taken by students within the project: Astronomer & data researcher, Music mapper & sound designer, AI composer & producer, Presenter & narrator.

Objective

The main goal of the project was to transform the cold mathematical data of the solar system — specifically, the distances of the planets from the Sun — into a living, emotionally resonant musical

experience. Students aimed to design a mathematical mapping algorithm that translates astronomical distances into musical frequencies, and to go beyond simple data sonification by applying sound design and layering techniques to reflect the physical characteristics and 'personality' of each planet. The final ambition was to produce a single unified rock composition in which all the planets of the solar system coexist harmonically, demonstrating that science is not only numbers but a universal rhythm waiting to be decoded.

Why the Project is Innovative

The project is innovative in both its conceptual ambition and its technical approach. The decision to choose rock music as the compositional genre was itself a deliberate and justified artistic argument: rock's combination of power, dynamics, energy, and structured complexity was chosen to reflect the nature of the universe — its explosions, its constant vibration, and its underlying physical order. The two-stage approach to the composition — first mapping distance to frequency, then layering sound design elements reflecting each planet's individual physical character — went significantly beyond simple data-to-note translation, producing a rich, multidimensional composition rather than a linear sequence of frequencies. The team's central argument, that science contains a universal rhythm that can be decoded into aesthetic experience, is a genuine philosophical proposition that the project tested and demonstrated through practice.

Project Description

Students began by researching and collecting the actual mean distances of all eight planets of the solar system from the Sun, using data from scientific sources including NASA's planetary fact sheets. These distances were recorded and organised for the mapping process.

Students then developed a mathematical mapping algorithm in which each planet's distance from the Sun was translated into a musical frequency. Inner planets — Mercury, Venus, Earth, Mars — with their smaller distances, were mapped to higher, more acute frequencies. Outer gas giants — Jupiter, Saturn, Uranus, Neptune — with their vastly greater distances, were mapped to lower, deeper bass frequencies. This produced a musical structure in which the solar system's spatial architecture is directly audible as a range of pitch from high to low.

In the second stage, students applied sound design and layering techniques to enrich the composition beyond the basic frequency mapping. Each planet was given additional sonic characteristics reflecting its physical nature: Mercury's speed was expressed through rapid note patterns; Jupiter's explosive energy was expressed through powerful, dramatic musical accents; Saturn's rings were evoked through layered, shimmering sound textures. This process transformed the composition from a data representation into a genuine artistic interpretation of the solar system's character.

The final composition was a unified rock piece in which all planets are present simultaneously, each contributing its frequency and character to the whole. The team titled the project 'Artemis 4', referencing the NASA Artemis programme and the human aspiration to explore the solar system. The presentation invited the audience to hear the universe as a composed, dynamic, and perpetually vibrating musical work.

Communication channels and communication methods used.

- Public showcase presentation at the Secondary School event 'The Sound of Science', held at Paphos Municipality Hall, in front of parents, teachers, evaluators, and the local community.
- Video presentations screened during the event, extending the reach of the project to a visual and non-specialist audience.

Are the results open source? If so, under which license?

The resources produced during this project are available upon request from the creators and the education.

Photos / Media Links

Link to the projects folder: [Here](#)



5 Conclusion

This document offers a compilation of the projects developed by teachers and students that participated in the implementation of the STEAM Innovation modular curriculum, demonstrating clear examples of the success of:

- Learning STEAM through Theatre
- Learning STEAM through Music
- Learning STEAM through Making & Tinkering

Through these approaches students became active agents in their own learning process, being encouraged to solve real-life challenges through creativity, Arts and culture embedded with the STEM disciplines.

In all four countries, a student-centered approach was encouraged by combining Inquiry-Based Learning and Design Thinking and with emphasis on the role of culture and arts formal education.

This Anthology demonstrates how effective such student-centered approaches are in not only promoting deep learning and the development of competences in students, but also in opening the doors to school-led societal innovation and development.

More specifically, in Italy and in Cyprus, the projects highlighted the creative potential of students when STEAM education is approached through collaboration, emotional reflection, artistic expression, and critical engagement with real-world issues. Students in both countries assumed active roles throughout the creative process, including concept development, scriptwriting, visual design, video editing, sound composition, digital production, storytelling, programming, data analysis, choreography, sign language performance, and dissemination. Their participation reflected a student-centered learning approach in which creativity, autonomy, teamwork, critical thinking, and emotional intelligence became central elements of the educational experience. They also illustrated the contribution of the STEAM Innovation project to fostering educational practices that connect creativity, technology, sustainability, and active citizenship.

In Greece, the implementation demonstrated how learning STEAM through theatre can become a powerful space for creativity, inclusion, interdisciplinary exploration, and innovation. The projects showcased how students can engage with complex scientific ideas in ways that are imaginative, collaborative, socially relevant, and emotionally meaningful. They also illustrated the contribution of the STEAM Innovation project to fostering educational practices that connect school learning with real-world issues, cultural expression, and active student participation.

In Portugal students developed prototypes with potential of turning into real-world solutions to relevant problems such as the reduction of energy consumption, water conservation, accessibility, financial literacy, among others. Some of them represented already fully-ready ideas such as fully working noise detection mechanisms to reduce noise pollution in the school settings and an upcycling initiative to create new clothes from old ones. Such projects not only represent the innovation potential of young minds, but also empower school students to become change agents in their communities. The students that developed such projects learned the curriculum on a deeper level, developed several skills and discovered that they can be creators of real value for their community.

Overall, the implementation of STEAM Innovation in the 4 countries resulted in a rich anthology of STEAM projects, which hopefully will inspire a wider uptake across European countries.