CONNECT

Inclusive open schooling with engaging and future-oriented science

BEST PRACTICES

Description for the website:

SUNBORN

This report presents an open tuition initiative about the SUNBORN Project, which was developed by Constantin Brancusi Technical College Constantin Brancusi Petrila Romania, (15/09/2022 to 30/06/2023). The activities included a science professional (PhD student Alexandru Gogea). It was supported by Valahia University in Targoviste, Romania. This work was previously presented https://www.connect-science.net/blog/connect-science-actions-in-romania-project-sunborn/.

Care: Students were involved in designing and developing a video game that promoted the importance of digital skills for a real-life problem. The creators of the game aimed to raise children's awareness about the usefulness of solar energy and solar panels. Students who participated in the activities were from all grades 9,10,11 and 12. The creators of the game were Hanc Ionuț Cristian - class 12 A and Bunea Nicolae - class 12 A.

Know: Students used knowledge about using green energy in planet exploration. The competences that the students practiced were: reasoned decision-making, teamwork on multidisciplinary topics, programming and implementation of software applications.

Do: At the end, the students prepared the video https://youtu.be/2GD1IbUWhdY?si=Ak9UjzFphl7Sjzd5 , which they presented in school. They carried out the activities in teams and their families were involved in purchasing the necessary equipment for building the game and with technical consultancy for using free software for creating games.

Findings related to the Open Schooling approach: The activity can be included in the curriculum in science, geography, physics, chemistry, biology classes and less in computer science classes, because the computer science curriculum does not address the topic of creating video games. But it was very attractive to students who were curious about the secret of building a video game. Open schooling could be the future of education for other teachers because it would empathize with students, motivating them in creating and using video games as a method of creative and digital development.

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The results obtained by the students: The student Hanc Ionuț Cristian, managed to get the first place, at the regional phase Made for Europe and to present the game in the UK and Greece within the project Eramsus+ - Games Jam, which had as theme the creation of video games. And because within the college we set up an excellent robotics group, which includes the creators of the game, following the visit of European Commissioner Ferreira, we were invited to the World Bank headquarters and the Ministry of Digitalization to present our projects. There I was able to talk to Ion, Mr. President's AI assistant. We presented the project online at GUESS Indonesia and physically at the Science on Stage Festival!

Please select the most relevant photo about your initiative (which will be public and published under an open license on the website to represent the practice).

ABOUT the CONNECT institution that supported the school	
ORGANIZATION	Valahia University of Targoviste
COUNTRY	Romania
Name of partner (contact person)	Nicoleta Cîndea
Implementation period	Starting date: 14/02/2021 Finish date: 30/11/2023/
ABOUT THE INTERVIEWED TEACHER(S)	
SCHOOL	Constanin Brâncuși Petrila Technical College
Names of TEACHERS (for certificates of good practice)	Nicoleta Cîndea , Camelia Mutică, Ciprian Dîrjan
LIKE	F,F,M
DISCIPLINE (Science, Physics, Chemistry, Biology, ...)	Physics/ Geography/ Logic
How many lessons were used in open schooling?	10
Title of the Open School Resource used	Sustainable Development and Green Energy / Carbon Neutral

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	Type of scientific actions (structured or open-ended scenario)	Open
	Curricular themes	Energy & Environment
ABOUT TEACHERS' STUDENTS		
	Class	9-11
	Average age	16 years
	Total student participants	75
	Total students who have completed scientific actions	75
SCIENTISTS INVOLVED:		
	Name	Gogea Alexandru
	Field	STEAM

Questionnaire

01. How have you (teachers) used open school resources? Could you describe what you did in your lessons?

Student activities with scientists:

So our former student, today, a PhD student at the University of Cluj Napoca, after a series of qualifications in the field of STEAM, became the mentor of the robotics team in the college and is our "library" of solutions to situations to be solved.

Student activities with families:

We organized the Researchers' Night in Petrila and the community and families came to encourage their children.

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02. How have your students used the CONNECT resources? Do you have (or could you describe) examples of the best scientific action (for our website/awards)?

Any examples of why the students prepared?

They made various objects from recyclable materials, and for two months we have been making compost from food scraps, which we use for flowers.

Slide? Poster? Video? (Add some images if possible)

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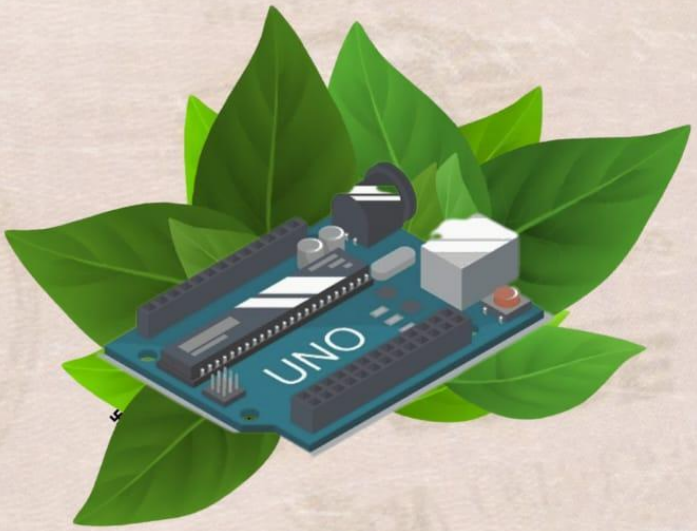
Festivalul Național
Science on Stage România

29 – 30 Septembrie 2023 Cluj Napoca

CASTING NOW



Colegiul Tehnic Constantin Brancusi Petrila

Autor:
Nicoleta Cindea
Coautori:
Dr. Ing.
Mitran Cecilia Livia
Ersoy Marcela
Mutica Camelia
Dirjan Ciprian

PROIECTUL NOSTRU

Acest proiect introduce kit-ul Arduino în școli, învățând elevii să îl utilizeze eficient și să construiască proiecte cu el. Totodată, îi sensibilizează la problemele mediului, ajutându-i să măsoare calitatea aerului, apei și solului și să înțeleagă importanța acestora. Astfel, elevii dobândesc abilități practice și cunoștințe relevante pentru combaterea schimbărilor climatice și protejarea mediului.

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RAȘUL PETRILA
DE CULTURĂ
LADISLAU SCHMIDT


COME ON, SHADOW IS HERE

https://drive.google.com/drive/folders/1HumohICKJnZsmcJfPttaI2eVZ-rBe3KX

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03. To what extent have the resources of scientific actions responded to your needs?

Needs related, for example, to school curricula:

Programs do not cope with real technological progress and should be designed to be flexible. For example, study Pascal when using Java or Python. Forcing students to do math exercises without correlating them with other STEM subjects, leading to a disdain for school.

Student involvement:

Students showed their willingness to be researchers for the festival.

Students' interest and confidence in science:

Students demonstrate how we could become their mentors. At high school level, our role is only to coordinate them in finding resources of any kind and to help them fly, swim in the universe of knowledge. The students I worked with became aware of this aspect especially after participating in STEM summer camps, including theater and film, involvement in various funded programs that opened the door to international collaboration.

04. How easy or difficult was it to use the resources of scientific actions?

Please add any specific issues related to materials, procedures, interactions, or curriculum:

At the high school level, it was easy to use the materials on the platform and we were honored to be able to post our game at the project level as well.

05. What have been the benefits of open schooling for your students?

Describe the results achieved by students in their scientific actions related to:

KNOWLEDGE	They gained knowledge about the need to use green energy and the influence of carbon footprint on daily life.
SKILLS	They discovered the easy way to create video games and use them for educational purposes.
ATTITUDES	They learned to use household waste in turning it into compost and using it.

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06. What were the challenges of using scientific actions for your students?

Select the main challenges students faced and exemplify:

☐ Difficult...

☐ Long...

☐ Boring...

☒ Other (Please specify): Attractive, creative, challenging

07. What activities worked well within the curriculum?

What helped students achieve their learning goals:

Their curiosity and openness to non-formal lessons, where they can solve the required tasks on their own.

08. What activities did not work well within the curriculum?

Anything that could be done differently or avoided:

In our case, time management. We carried out several projects in parallel, and the group of teachers involved was small.

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