

CONNECT

Inclusive open schooling
with engaging and
future-oriented science

BEST PRACTICES

Description for the website:

Involvement saves the planet

This report presents an open schooling initiative about CONNECT - Horizon 2020 Science with and for Society, which was developed at the Energy Technological High School "Elie Radu" Ploiesti, by teacher Soare Elena, between 20/10/2022 and 12/06/2023. The activities included a science professional (-). It was supported by Valahia University in Targoviste, Romania. This work was presented previously (<https://connect-eu.exus.co.uk/ro/members/bubu/>).

Care: Students were interested in learning about the negative environmental effects of plastic waste currently choking the planet, plastics disposal scenarios, and the advantages of using bioplastics over conventional plastics. Students who participated in the activities are aged 17-18, twelfth grade, 26 in number, basic field: natural resources and environmental protection.

Know: Based on the knowledge gained and by solving the tasks in the worksheets presented in the project, students developed skills of analysis and awareness of the negative effects of plastic on the environment and offered the opportunity to propose ways to reduce pollution with this type of waste.

Do: In the end, students made informative leaflets about the negative effects of plastics, drawings and models about the need to reduce plastic use, thematic articles in the school magazine. Family members were also involved in the activities, together carrying out activities to reduce pollution and raise awareness of the transition from linear plastic consumption to circular consumption.

Findings related to the Open Schooling approach: The activity is framed in the curriculum, within the environmental protection module, according to the qualification of the class that participated in the project. It was a challenging activity, which managed to actively involve students, families and members of the local community in collecting a large amount of plastics at school level, and from its capitalization was purchased planting material for the green space of the school. Open schooling could be challenging for other teachers as it provides opportunities to raise awareness of the need to reduce plastic use and build an environmental awareness that it passes on to students.



Student results: Students were actively involved and challenged in obtaining bioplastics from corn starch, acetic acid and glycerine and in selectively collecting a large amount of plastic mass. As an example, one student mentioned, "If we all use so much plastic and don't stop, then we're going to suffocate the Earth as fast as possible."

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)	Mihai Bizoi
Implementation period	Starting date: 20/10/2022 Finish date: 12/06/2023

ABOUT THE INTERVIEWED TEACHER(S)

SCHOOL	Energy Technological High School "Elie Radu" Ploiesti
Names of TEACHERS (for certificates of good practice)	Soare Elena
LIKE	F
DISCIPLINE (Science, Physics, Chemistry, Biology, ...)	Biology
How many lessons were used in open schooling?	4 lessons
Title of the Open School Resource used	"Biodegradable plastics – a solution to tackle 'white pollution'?"
Type of scientific actions (structured or open-ended scenario)	Obtaining biodegradable plastic from renewable sources ("bioplastics"). Environmental risk assessment of plastic. Solving "white" pollution through the alternative of biodegradable plastics.
Curricular themes	Investigating the effect of plastic on the environment. Developing responsible behavior in students within the environment. Participation in discussions, eco-debates with the participation of specialists in the field of environmental protection on the topic of plastic pollution.

ABOUT TEACHERS' STUDENTS





Class	XII H
Average age	17 years old
Total student participants	26 students
Total students who have completed scientific actions	26 students
SCIENTISTS INVOLVED:	
Name	-
Field	-

Questionnaire

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

Student activities with scientists:

Based on the information presented in the module "Biodegradable plastics – a solution in solving "white pollution"? and information from the Experiment Sheet, information on plastic, biodegradable plastics was presented, and selective plastic collection and bioplastic synthesis activities were organized.

Student activities with families:

Involve students and families in plastic collection and recycling activities and use of bioplastic products or other recyclable materials.

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 connected on the Connect platform, went through the materials presented and participated in the activities carried out by the teacher.

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





students

Bioplastic obtained by

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

Needs related, for example, to school curricula:

The materials presented launched many challenges to students, from the plastic alphabet to the notions of bioplastic, compostable, biodegradable plastic. Through the information, students were able to identify potential environmental benefits or risks associated with the use of biodegradable plastics compared to conventional plastics.

Student involvement:

The students, supported by their families, were actively involved in collecting plastic containers and limiting their use. They produced biodegradable plastic from renewable sources, namely the high-starch vegetable mass resulting from the food industry: apple peels, bananas, potatoes, which could be an alternative to conventional plastics. By going through the worksheets, students had the opportunity to design ways to solve environmental problems and their consequences.

Students' interest and confidence in science:

The materials presented within the Connect Project contributed to completing the level of knowledge on environmental protection priorities among students, stimulated civic and participatory spirit in solving environmental problems caused by this type of waste.

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:

The materials made available on the Connect platform were attractive and easy to use by students and present examples of learning activities through which general and specific competences can be developed in the field of students' environmental education.





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	Students developed knowledge about the consequences of environmental degradation through excessive plastic use.
SKILLS	By carrying out the activities presented in the module, students developed communication skills within the group, the ability to convince the community or colleagues to selectively collect plastic through the power of their own example.
ATTITUDES	After completing the module, students design environmental protection measures, show motivation and desire to participate in actions aimed at improving the state of the environment through involvement in activities at local community level and awareness of the need to reduce plastic use.

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

Select the main challenges students faced and exemplify:

- Difficult...
- Long, the materials presented are very consistent and require many hours to go through.
- Boring...
- Other (Please specify): ...

07. What activities worked well within the curriculum?

What helped students achieve their learning goals:

The activities and tasks were attractive and challenging for the students.

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

Anything that could be done differently or avoided:

This is not the case.

