

Report

BIOPROFILES



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Co-funded by the Erasmus+ Programme of the European Union



Examples of practical environmental education in schools

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Bioprofiles

Schools assessing the quality of their environment

A **Bioprofile** is a short case study from pupils who have assessed the quality of their environment and taken action to improve it for the future.

To complete this case study pupils have to:

- Research one of seven environmental topics to find out why it is important and how it could influence their daily lives. [see the <u>Handbook for practical environmental</u> <u>education in schools</u>]
- Test / sample their environment using the indicator activities [see the <u>Ideas for student</u> <u>research projects</u>].
- Research what action they can take to make a difference and take some action [see the <u>Ideas for student research projects</u>]
- Share their findings with others

We have had twenty-nine teachers, who have completed this process. You can find their Bioprofile presentations on the website teachinggreen.eu in section <u>GOOD PRACTICE</u>.



There are seven topics to choose from and two indicator activities for each topic. The indicator activities are easy to use and designed to fit into a tight school timetable and a range of subjects. All the teachers completed a minimum of two activities in a twelveweek period. The activities are aimed at 10-15-year olds and can be differentiated to the needs of the group. We have examples of special needs schools in the UK at Polygon and Hamilton Grammar and Spojená škola in Slovakia.

It is not essential to have training before doing these activities as we have provided all the resources to plan a lesson. You will find the background information in the handbook and the indicator activities to help with your fieldwork.

Bioprofile's Seven Topics

Water Biodiversity Natural and Cultural Heritage Air Waste Energy Human Environment



Bioprofiles A global perspective

Did you know that there are 17 UN sustainable development goals? You can find out more and access the UN teaching materials <u>here</u>. Bioprofiles activities are here to support you in working towards these goals, in your school.

Skills

Teachers reported students taking part using a range of skills including:

- Investigating secondary sources of information
- following a method;
- data collection;
- analysing results;
- evaluating and putting proposals together and
- taking concrete actions to overcome environmental issues.

They also showed a better understanding of their local environment.

Teaching methods

Teachers have tried different teaching methods during their delivery of this project, including:

Enquiry/issue Led learning

Kahoot quizzes

Decibel meters

Measuring tools on google maps

Using student mobile phones

Data collection tools

Presentation software

Arts and crafts



Bioprofiles What we found out?

Schools were chosen by <u>the national partner</u> from each country if they could show they would be able to embed these activities into their teaching and whole school needs.

	Slovakia	Italy	Spain	UK
Age ranges worked with in our schools	7-15year olds	11-14 year olds	6-15 year olds	10-15 year olds

Age groups taking part in each country

Practical actions taken: Letters to local government Participation in government forums Physical changes to their school grounds All pupils having their own reusable water bottles

Physical changes to their school grounds Energy/waste saving at home and in school Scientific findings shared

Quiet or calm areas created for reflection and music indoors and reading

Quieter hand driers installed and quieter dining areas

Litter picks in local public spaces

Radio broadcast

Environmental art

Community tree planting

Increased Recycling and waste reduction



Topics chosen in each country

Country	National Curriculum linked topics chosen by our schools	
Slovakia (13 teachers)	Air Water Energy Biodiversity Human Environment Waste Natural and cultural environment	
Italy (5 teachers)	Air Water Biodiversity Human Environment Waste	
Spain (5 teachers)	Air Water Energy Human Environment Waste Natural and cultural environment	
UK (5 teachers)	Water Human Environment Waste Natural and cultural environment	



Bioprofiles Feedback from the teachers

The teachers have come from a range of subjects and schools. We have examples in the UK of behavioural units at the Polygon and autistic students at Spojená škola in Slovakia. In Italy we have examples of schools who are affected by local flooding or do not have access to school grounds. In Murcia in Spain they have had to work with 40 degrees heat and long summers with little rain. Whilst in Slovakia they support a large car manufacturing industry that affects waste production and air quality.

Despite these differences some of the feedback from teachers is very similar. Children want to use technology and be outdoors. They are inspired by enquiry led learning and often feel they cannot make a difference to their environment.

The teachers have given us some amazing feedback and here is just a taste of what they said:

"The water activity has been very interesting for students since they have worked in groups autonomously. The teacher was presented the activities little by little and guided the work but the students chose the work, they chose freely where they wanted to work, inside or outside the classroom, they went to look for the information. They have worked in a completely different way than they usually do and have been able to use some of the tools they have been learning all year."

"The Energy activity has been very interesting since it has allowed students to work with real data from their homes and the results they have obtained are of interest to the family budgeting."

Javier

"The resources on the human environment provided are extensive for students of this age and so we adapted them for my students. After this project students understand the importance of being active citizens as well as the influence of the environment on our mood. Students have enjoyed the activity because of the innovative methodology. It is a practical case that allows them to verify with real data the impact that their activity has on the environment. They liked the fact that they could solve the problem by their own means."

Maria

"The students enjoyed doing the water activity, specially the "hands-on" part of going outside and checking the water meter by themselves."

"The teachers suggested making an emotional map of the playground first, since it is the most immediate outdoor place for our students. The emotional mapping activity was good as students could do it without a high knowledge of science issues"

Ana-Maria

"Our findings led us to healthy outrage, particularly after the research showed the damage the plastic is doing in nature."

Michelle

"It was fine to follow their enthusiasm while they were working and brainstorming new ideas how to reduce their overall ecological impact on the Earth."

Luboslava

"Using the energy activities all the pupils have become aware of how easy it is to avoid having, devices in stand-by mode at home. This project has been very enriching for my students, they have learned how easily they can avoid unnecessary expenditure and even more importantly, how to avoid polluting the environment."

"On the Green spaces activity the students learnt to work with Google maps and realised that it has many more utilities than they knew. They had never made measurements with Google maps, and they found it very entertaining and useful to see and be able to measure their town, streets and parks. They were challenged by changing units from square m to hectares. The essential thing is that they became aware of the need for green spaces and that we all have the responsibility to be very careful with them, for example our school orchard. We have found it an interesting and enriching activity, especially because of the awareness of caring for and protecting the environment.

Elena

"Pupils don't know a lot about ecological footprint, so I think it was interesting topic for them (7. grade)."

Lucia

"The Acid Rain materials and worksheets are easy to understand and well arranged. They provide sufficient amount of information."

Gabriela

If you want to see more detailed feedback from the teachers please go to the <u>Good practice</u>.

The teachers were very motivated and enjoyed the background learning presented in the <u>Handbook TEACHING GREEN</u> along with the use of new digital applications and online tools, which can be found in the <u>INDICATORS BOOK</u>.

Bioprofiles The student voice

In each presentation you can see a short reflection from the students. The main feedback has been that they like the hands on practical and use of technology. Here is what one group of students fed back.



"We really liked the practical aspects, that is the measurements we made by ourselves because we felt like real researchers."

"We really enjoyed the practical part of the project, setting the collecting station for rainwater, measuring the pH using the pH meter. We appreciated studying science, geography and English in a different way...less frontal and more interactive, even if geo-science lessons in English are less easy to understand."

14yrs olds



Bioprofiles Highlights from the national partners

Partners have fed back that these activities have added rigor to the curriculum delivery, stretching students through the application of knowledge and skills to real life problem solving.

Italian National Partner talking about Istituto Comprensivo Sacchetti of San Miniato

"This group of students implemented the acid rain activity putting the focus on the scientific method of collecting data and they did a very good job. They set the experiment, collected data, estimated data meaning and reliability and presented results in a very scientific approach. At the same time they reflected on their results and thought about actions and behaviour to mitigate this issue."

Bioprofiles Conclusion

The teachers and students have found this project very stimulating. Allowing teachers' time to network and go abroad has been a real motivation to embed new activities and methodology in their teaching. We have all seen an increased confidence in the use of English as a second language.

Many of the schools have added to their investigations by making learning more memorable through learning outside the classroom experiences or bringing in local expertise to widen the students' investigations. The students have overwhelmingly fed back how much they like using the outdoors and IT to do their field work. Whilst the teachers have seen an increase in motivation as the work is given a real purpose, encouraging the children to take real actions to improve their environments.

This project was completed at the peak of student action against climate change in 2019. Teachers have fed-back that this project has supported students' mental well-being supporting them to believe that they can make a difference.

"This Project has been very rewarding for my students because, even if they are very exposed to news and theory about climate change, in Spain there is a lack of reflection on the consequences that climate change has in their daily lives, the impact these consequences have and what they can do to deal with this situation. Moreover, they needed some examples that could set them closer to solutions or actions that they can do every day, to help the environment and improve their actions, to prevent further damage." It is sad when you hear the frustrations of being let down by local government officials who say they will come and support students and then don't turn up. Our role as adults to model positive behaviours is so important for the future.

The teachers have been fantastic to work with and we thank them all very much. We hope others can learn from what we have done and enjoy using the activities.

"It has been a pleasure to participate in this project for me and my students. Thank you".

Elena

Ana

"The Earth is what we all have in common." Wendell Berry



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