

Report

# TEACHING GREEN



Examples  
of practical  
climate education  
in schools

**TEACHING**  
GREEN



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# TEACHING GREEN

## Schools assessing the quality of their environment

A **Teaching Green** is a short case study of students from 4 European countries – Cyprus, Italy, Slovakia, and Spain, who have assessed the quality of their environment and taken action to improve it for the future.

To complete this case study students & teachers had to:

- Fill out the Assessment Questionnaires by students to evaluate their attitudes towards selected climate change impact. [see the [Assessment Questionnaires](#)]
- Learn more about the 9 most serious climate change impacts by teachers to find out how it could influence their daily lives. [see the [Online Training Course](#)]
- Monitor their environment by students & teachers, while using the indicator activities and research what action can be taken to mitigate the consequences of climate change impacts. [see the [Practical Monitoring](#)]
- Share with others their findings and ideas about how they contributed to mitigating climate change through activities. [see the [Good practice](#)]

We have had twenty-six teachers, who have completed this process. You can find their Teaching Green presentations on the website [teachinggreen.eu](http://teachinggreen.eu) in section [GOOD PRACTICE](#).



There are nine topics to choose from and to monitor the local environment through research-based activities using the citizen science approach. The indicator activities are easy to use and designed to fit into a tight school timetable and a range of subjects. All the students, facilitated by their teachers, completed these activities in a 2-3 month period. The activities are aimed at 10-16 year-olds and can be differentiated to the needs of the group.

It is advised to attend the online training for teachers before doing these activities as we have provided them with all the resources to plan a lesson. You will find the background information in the relevant online modules and toolkit for monitoring to help with your fieldwork.

# Indicators for Monitoring Climate Impact

- ❖ How transportation changes the chemistry of ocean water
- ❖ How diverse surfaces and materials create heat islands
- ❖ How changes of global fresh water distribution affect its availability
- ❖ Selected species as bioindicators of climate change
- ❖ What is the carbon footprint of the food you eat
- ❖ How climate change affects our health
- ❖ How the textile industry contributes to the increase in carbon dioxide emissions
- ❖ What is the availability of green areas in cities
- ❖ How forests contribute to capturing carbon dioxide from the atmosphere



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## Applied methodology

### Step-by-step methodology

Teachers reported students were following the step-by-step methodology in practical monitoring:

- ❖ Selected monitored areas and area examination via Google Maps and aerial photographs
- ❖ Getting to know the topic and acquiring new information
- ❖ Data collection and analysis of collected data
- ❖ Practical monitoring of selected indicators to better understand the local impacts of climate change
- ❖ Using web and mobile applications during practical monitoring
- ❖ Conclusions from the monitoring and suggestions for solving the selected situation
- ❖ Specific activities that students implemented to minimize their impact on the environment and mitigate the impact of climate change
- ❖ Recommendations to local authorities and communities

**At the end of the monitoring they also showed a better sense of social responsibility for their local environment.**

### Learning methods

Research-based learning

Citizen Science approach

Measuring tools on Google Maps and aerial photography

Monitoring tools

Mobile & web applications

Data collection tools

Presentation software

Outdoor learning



# Nine Monitored Climate Impacts

- ❖ Changing the chemistry of ocean water (mostly by absorption of carbon dioxide from the atmosphere)
- ❖ Hotter temperatures of the global surface (by soil heating depending on the surface area)
- ❖ The changed water availability, increased drought, changed the global distribution of freshwater
- ❖ Loss of species, biodiversity, changing ecosystems
- ❖ Not enough food, rising global hunger (and poor nutrition, CC affecting global agriculture, caused by a rising global population too)
- ❖ More health risks (due to climate change impacts and rising the temperature)
- ❖ Rising carbon dioxide in the atmosphere (due to types of industry, e.g. textile industry)
- ❖ Physical infrastructure vulnerable to climate change
- ❖ Unexpected weather conditions (caused also by increased CO<sub>2</sub> in the atmosphere)



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## What actions did we take?

Schools were selected by [the national partner](#) from each country by demonstrating that they would be able to integrate these activities into their teaching and whole school needs.

### TRANSPORT:

- Reducing the carbon footprint of individuals and calculating the emissions they have saved, e.g. by walking instead of travelling by car
- Promoting a broader use of public transport, carpooling, or just walking to public and local authorities
- Meeting with the Mayor of the town to present the project ideas and results
- Recommendations to parents not to drive their children to school, but to use another mode of transport

### RISING TEMPERATURE:

- Finding ways to reduce urban warming by green spaces, shadow by trees and evaporations by plants.
- Meeting with the Mayor of the town to present the project ideas and results
- Planting the trees to expand green areas and create shade for the future generations
- Evaluation of the school ground and recommendations to the school management/council on how to reduce the temperature by using shading, planting trees, changing the concrete area to a lawn, adding a pond, etc.



### **WATER AVAILABILITY:**

- Creation of a rain garden on the school grounds, with the help of parents
- Harvesting rainwater in collection containers and its further use

### **BIODIVERSITY LOSS:**

- Creating a garden in the school ground with local flowers and trees
- Monitoring the biodiversity, changing ecosystems and invasive species in the lagoon

### **FOOD WASTE:**

- Food selling market, reducing the waste to the minimum
- Calculation of carbon "foodprint" (CO2 impact of food) of the products in the local shops

### **HEALTH RISKS:**

- Thermal walks evaluating thermal comfort in different spots outdoors in different weather conditions (shades, direct sun, concrete surface, windy weather,...)
- Planting flowers in the school ground

### **TEXTILE INDUSTRY:**

- Organizing swap markets at school, and fashion exhibitions from second hand clothes
- Giving hand-made bags (made from unwanted clothes) away to people on the streets
- Making t-shirt yarn and crochet a cell phone pocket or little pad under cup, making something new - bags for fruit and vegetable





### GREEN SPACES:

- Changing part of the school grounds to green areas
- Building sensory garden, a bug hotel, vegetable gardens, small ponds, planting the trees
- Cleaning the surrounding area with the local people

### FORESTS:

- Growing a tree from a seed
- Planting the trees (355 trees planted by one Slovak school in Valaská)
- Cleaning the local green areas (430 people took part in one day in Slovak village Valaská, collected 400 kg of garbage)





# Teaching Green

## Feedback from the teachers

The teachers have come from a range of subjects and schools. We have examples from small villages in Slovakia, surrounded by the forests, schools from Nicosia in Cyprus, experiencing hot summers, schools from Italy, reporting the floods just before the practical monitoring took place and schools from Spain, in connections with the Mar Menor lagoon and possibility to monitor the undersea ecosystems and its threats.

Despite these differences some of the feedback from teachers are very similar. Students want to use technology and be outdoors. They are inspired by research-based learning, with the application of citizen science 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:**

“Teaching Green on Carbon Footprint has been, hands down, an eye-opener. It has prompted us to reflect on how detrimental carbon emissions can be to our planet and on the fact that our unsustainable carbon footprint needs to be strictly regulated.” *(Antonio, Spain)*

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“The purpose of letting my students experience thermal walk was to improve their perception of how dangerous is the impact of Global Warming on our health. Heat waves can negatively influence your mood and your performance. Many thanks to the Teaching Green Project and all its staff for the precious opportunity offered to all of us.” *(Isabella, Italy)*

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“Throughout the project, both students and teachers were surprised by some of the high-temperature data that was reached on some surfaces and by the need for measures that can improve this situation. It has helped us all to achieve a greater degree of awareness about caring for our environment and our planet. What we value most positively is the promotion of teamwork that has been carried out, both by the teachers involved and by the students.” *(Maria, Spain)*

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“We found that even small steps can be taken within the school grounds to use rainwater - e.g. a rain garden that also attracted small insects and butterflies. The students were excited to learn a way to use rainwater and not let it go to waste.” *(Eva, Slovakia)*

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“If we want the future generations to take care of the environment then they have to spend more time in nature, so they are familiar with the surroundings, and they learn how to behave there and care for it since it is part of their life and offer healthy opportunities.” *(Pedro García, Spain)*

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“I was very happy to introduce this topic to my students, at first they were quite sceptical and unwilling to change some of their habits, but the information provided, and the activities helped them understand the impact of the textile industry. I was very surprised to discover they had never heard about this problem before my lessons.” *(Rossella, Italy)*

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“After completing our work, there were several benefits for the pupils. They have learnt the importance of turning barren areas into a place full of vegetation. They became more aware of the fact that even a little school can add to saving our environment.” *(Zoltan, Slovakia)*

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“Pupils were very excited with planting seeds activity, as many of them has never before worked with soil. They also were interested in their personal carbon footprint values and a way how to decrease it.” *(Ondrej, Slovakia)*

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“With the new information that they have acquired through the activities they have become more responsible towards the environment and more thoughtful and can now understand how nature and green spaces can improve our health and quality of our lives.” *(Angeliki, Cyprus)*

If you want to see more detailed feedback from the teachers, please go to the [GOOD PRACTICE](#).

The teachers were very motivated and enjoyed the background learning presented in the [ONLINE TRAINING COURSE](#) along with the use of new digital applications and online tools, which can be found in the [PRACTICAL MONITORING](#) part.



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## 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 some of the students fed back.

With this research, we have learned a lot about the heat island effect in cities. We think that research could be done to find materials that do not increase the temperature of our surroundings. In addition, more areas of our town should be dedicated to parks and green areas where the heat is not so concentrated.

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We need to save and use rainwater to protect our planet. It took a lot of time to realize one of our solutions. We would like to also make the green roof because it seemed very interesting and helpful.

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The biggest challenges we have faced were (1) the weather - this spring was bad to be outside so it was not easy to go into the water and (2) we should contact a local association to develop this activity properly.

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Today's activity (the swap market) was very funny, and I learnt a lot from it. I had never exchanged second-hand clothes before today. I swapped a pair of trousers for a hoodie with F, who is almost as tall as me. I think I'll probably buy other second-hand clothes. Before today I had never heard about pollution caused by the textile industry. After this activity I have changed my mind, I believe small actions can make a difference.

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The biggest challenge for me was to find motivation and being active thinking that even small actions can change the way we live.



# Teaching Green

## 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.

**Slovak partner providing an expert review of materials on water availability, talking about school in Poprad, Slovakia**

**“Playing scientists and learning something at the same time is always interesting for students. Findings that rainfall is decreasing year by year made the students think about how to better retain water in the country. School grounds should serve as places where students try to improve something around them through their efforts - whether it's growing vegetables or creating a rain garden (like this school in Poprad, Slovakia) to use rainwater that would otherwise run off.**



# Teaching Green

## Conclusion

**The teachers and students have found this project aimed at climate change impacts at the local environment 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 mobile and web applications to do their field work. Whilst the teachers have seen an increase in motivation as the work is given a real purpose, encouraging the students aged 10-16 years to take real actions to improve their environments.

This project was completed at the peak of student action against climate change in 2023. Teachers have fed-back that this project has supported students' mental well-being supporting them to believe that they can make a difference.

**"Taking part in this project has been a very enriching experience, both personally and professionally. The location where we live is characterised by a semi-deserted area, where it doesn't rain very often, therefore it is vital that our students understand the importance of saving water and not wasting it, since it is a precious resource for us."**

*Irene, Spain*

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. with other students.**

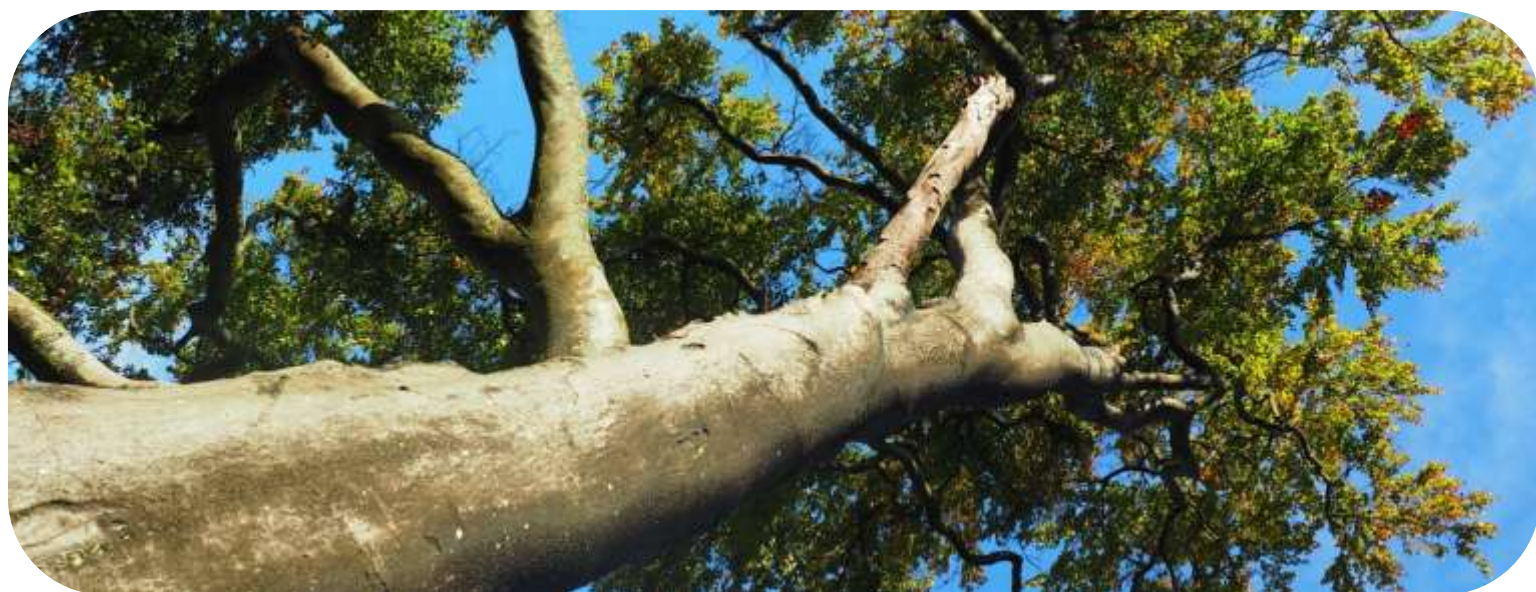
**"It has been a pleasure to participate in this project for me and my students.**

**Thank you".**

*Silvia, Italy*

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

STRM ŽIVOTA



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