

THE GREEN HEARTS



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Editorial

One of the most important things in terms of ensuring the comprehensive development of the personality of young people nowadays is to provide them with opportunities for quality education. In addition to teaching classes during the school year, the participation of pupils in projects supported by the European Union is a very interesting opportunity. That is why partner schools from five European countries met during the implementation of the Erasmus+ project called The Green Hearts.

In addition to the primary school from Brezno, Slovakia, which was the main coordinator of the entire project, schools from the Czech Republic, Poland, Cyprus and Croatia also took part in this interesting opportunity. Despite the fact that during the years 2020-2022 we could not meet in person due to the COVID-19 pandemic, we were still able to successfully implement a number of virtual activities. In the end, we managed to fulfill all the planned goals of the project, which we set at the very beginning.

In summary, the Erasmus+ projects offer primary school students a range of opportunities to broaden and enhance their life skills, including cultural awareness, language skills, teamwork abilities, personal development, and exposure to innovative teaching practices. These experiences can have a lasting impact on their education and personal growth, helping them become well-rounded and open-minded individuals in an increasingly interconnected world.

We have prepared this eMagazine with the aim of informing all participating partners, representatives of other schools, representatives of cities and municipalities, as well as parents of our students and all interested parties from the European Union about what activities we managed to implement over the duration of the project. The photos are a great example of how the atmosphere and friendships created during the project will have a timeless dimension and benefit everyone involved. So I invite you to make a short excursion to The Green Hearts project, which will remain in our hearts for a long time

Lucia Gérerová

ZŠ s MŠ Karola Rapoša, Brezno, Slovak Republic
The Green Hearts coordinator



Partners

Contact seminar

The uniqueness of this project lies in the fact that the teachers from this partnership agreed on the importance of Environmental Education during an Erasmus + TCA contact seminar in 2019 in Bratislava. It was focused on a Learner-centred approach which shifts the focus of activity from the teacher to the learners. We attended a lecture on this subject by Gabriela Lojova, professor at the Department of English Language and Literature of the Faculty of Education, Comenius University in Bratislava. Our main motivation for this partnership was to apply a Learner-centred approach to environmental education. We wanted to build learners self confidence, accept their needs, interests and opinions.



The first coordinators' online meeting

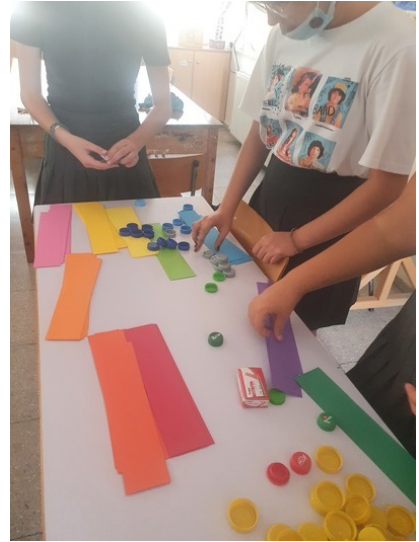
The COVID 19 pandemic has brought with it a multitude of challenges, how to keep students learning despite them not being able to be in the actual school building. Technology has enabled teachers to connect with students remotely and to conduct lessons online using various platforms and apps that promise engaging content alongside interactive opportunities. Project partners agreed that at all stages of virtual school it is important to ensure that they stay motivated, keep learning and most importantly continue to thrive during these difficult times.

Partners decided to encourage their students to interact with friends, as they would at school or in the evening. Create opportunities for them to socialise through phone calls, connecting on social media or the school's platform, and meeting face-to-face when restrictions allow.



Erasmus corners

Students took an advantage of the Erasmus Days to decorate the Erasmus Corner. The plastic caps that they used were collected the previous week during which they made a Recycle-Reuse Campaign



#ErasmusDays 2020

Partner schools organized an event for #ErasmusDays 2020 to spread the word about the Green Hearts project. They took part in the 4th edition of this event, advertised and shared #ErasmusDays 2020 it with their community on school websites, Facebook. The Green hearts project was mentioned on official web page erasmusdays.eu.

Students disseminated the idea of recycling and reducing wastes.

In Poland students made vases out of plastic bottles to give them a second life. They prepared and displayed presentations giving some pieces of advice how to be environmentally friendly. They voted for the school logo design of the project, carried out a questionnaire prepared by two students to check the awareness of young people concerning the environmental issues. They had an exhibition of posters connected with environment and one 6th grade student will make a presentation about ecological means of transport(his hobby)

In Croatia students celebrated Erasmus Day with music and dancing. They sang the well-known song "Ode to Joy" in English, which connects all European countries. They accompanied the singing with musical instruments made of waste material (plastic bottles, glass bottles, cans, paper ...). All students were dressed in green T-shirts to raise awareness of the importance of environmental protection. In this way, with the help of music and dance, which is also a favorite activity of children, they brightened up the celebration of Erasmus Day.

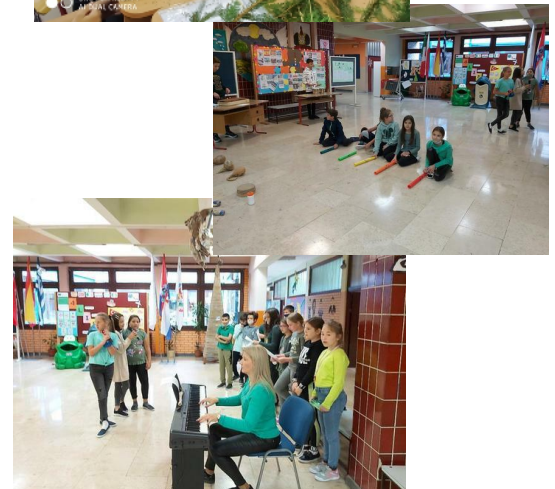
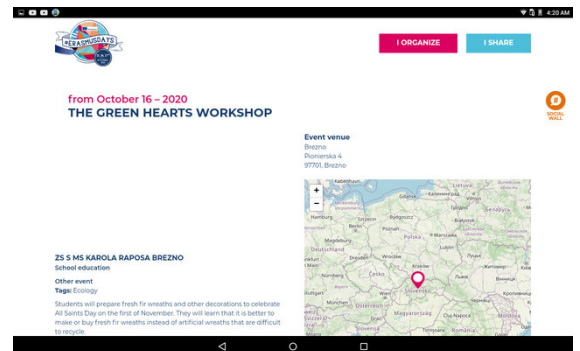
https://www.erasmusdays.eu/news_mp/more-then-100-erasmus-days-events-in-croatia/

In Slovakia Students prepared fresh fir wreaths and other eco friendly decorations to celebrate All Saints´ Day on the first of November. They realized that it is better to buy fresh fir wreaths instead of artificial wreaths that are difficult to recycle. On Twinspace they explained to their peers from partner schools that during these days cemeteries overflow with plastic flowers and wreaths.

<https://www.erasmusdays.eu/event/the-green-hearts-workshop/>

Poland prepared Ecologic Workshop

<https://youtu.be/a7acyVakHjY>



Logo Contest

Our students prepared the project logo designs. They participated in a logo contest and voted for their favourite image for the project.



Croatia	Cyprus	Poland	Slovakia	Czech Republic
Cyprus-15	Croatia-15	Croatia-20	Croatia-10	Croatia-5
Poland-10	Poland- 20	Cyprus-20	Cyprus-10	Cyprus-5
Slovakia-5	Slovakia-20	Slovakia-15	Poland-15	Poland-5
Czech Republic- 10	Czech Republic-20	Czech Republic-5	Czech Republic-15	Slovakia-10
Total sum: 40 points	Total sum: 75 points	Total sum: 60 points	Total sum: 50 points	Total sum: 25 points

THE WINNING LOGO IS..... CYPRUS!!!! CONGRATULATIONS!

And the Winner is....



Kahoot

Another activity was a Kahoot quiz called a Green Quiz testing the basic knowledge about the environment.

Nowadays, learning has become fun with the help of many exciting tools and applications that are available in this virtual world. Kahoot is one of them. It shifts from bookish knowledge to real-time fun learning. The coordinator from Cyprus Toulla Chrysostomou created a KAHOOT quiz on Environment, sustainability, waste management and related vocabulary to assess students' initial knowledge on this subject at the beginning of the project. Students played independently during a set time frame with 16 questions and answers displayed on their devices or computers. Students found the quiz very interesting, remarkable and intriguing, they enjoyed it since they are very competitive. It boosted their engagement. Students could play both individually or in groups.

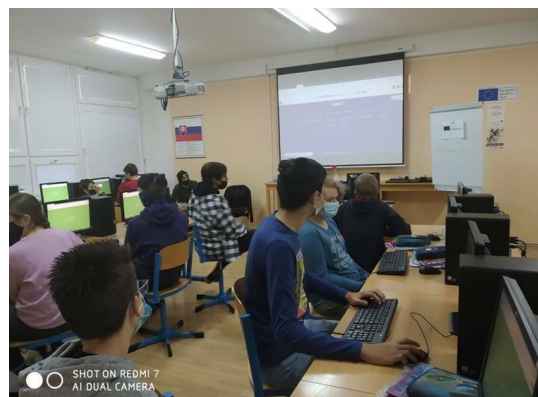
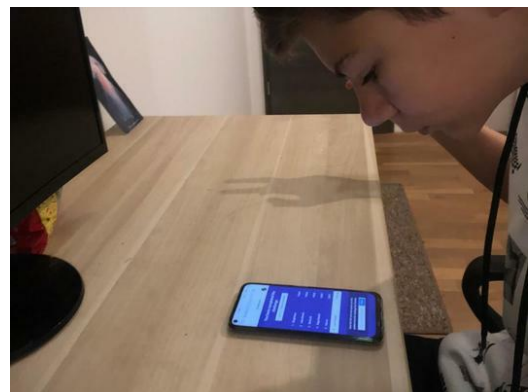
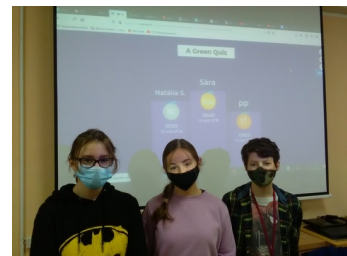
<https://create.kahoot.it/>

Complete this Phrase: _____, Reuse, Recycle

What is "a panel designed to absorb the sun's rays as a source of energy"?

Why is sustainability important?

Which one of these are renewable sources of energy?



Sorting out waste

For 2 days, I segregated my family rubbish and divided it into four categories: paper, plastic, glass and mixed waste. I was amazed at how much plastic I collected in such a short time. Two bags of plastic! I wondered why so many products are packed in two raw materials instead of only one. For example the package for cookies is both paper and plastic. Some rubbish, for example, milk wrappers, appear to be made of paper but are actually a plastic. Every day I segregate rubbish because I know that I have to take care of the environment!



After three days in the green bag I found two bottles. The blue bag was half-full of papers. I was really shocked when I saw the yellow bag. Plastic garbage barely fit in it.



Until today I tried to segregate rubbish but now I see how important and necessary it is. I have one conclusion: people produce and use way too much plastic. We need to reduce the production, otherwise the plastic could overwhelm us one day.

Sorting garbage

My family has been segregating rubbish for several years. We divide them into: plastics, papers, glasses, bio-waste and mixed waste. Plastic is always the most abundant and glass the least. I really like to separate rubbish because it is not only good for the environment, but it can also be fun.



In my house, we've segregated rubbishes for 14 years. I didn't think there are so many of them. These are only rubbishes from 2 days. I'm shocked.

CleanUp Day



Consumer Survey

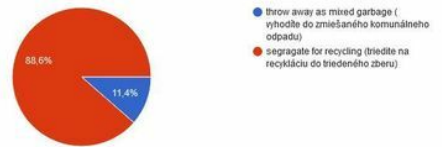
In January 2021 schools remained closed due to pandemic situation. During online English lessons teachers undertook a background introduction to the impacts of packaging waste on the environment and how to carry out the consumer survey in Google Forms. They brainstormed with students to find examples of different types of packaging materials: cardboard, glass, metal, plastic, wood and introduced to them the importance of packaging.

Each partner school undertook the survey with at least 40 participating students and their parents. Students from partner schools were asked to analyse and present the results of this activity. This was done through online classroom discussion. Where students were encouraged to present the results in the form of Google form graphs. They were displayed on Twinspace.

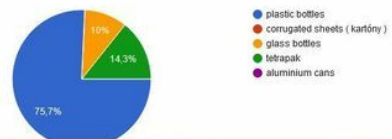
Students were approachable, very well-informed and passionate about the subject. They went into some depth and seemed genuinely interested. Students were active agents and they positively engaged in the learning process. They shared their own knowledge, past experiences and ideas in the survey and they learned from their parents, classmates and partners. This is clear proof that a learner-centered approach was used in this activity.

The objectives of this activity were achieved. Students presented their concerns about packaging waste and were able to explain why and how packaging waste has an impact on the environment.

How do you dispose different packaging items like plastic bottles, corrugated sheets, glass bottles, tetrapack, aluminium can? Ako nakladáte s rôznymi obalmi?
70 odpovedí



What kind of packaging material are you most likely to return for recycling? (ktorý obal najčastejšie triedíte?)
70 odpovedí



When you go shopping would you care to carry your bag? (Beriete si na nákup vlastnú tašku?)
70 odpovedí



When you go shopping
70 odpovedí



Zero waste



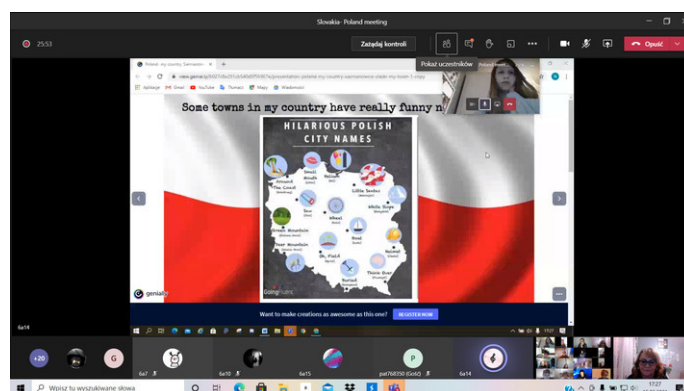
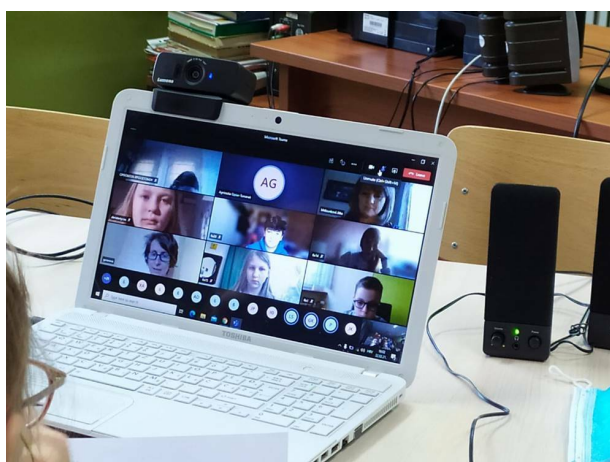
1st Online students´ meeting

On the February 22nd 2021, the first official meeting with all the school members, meaning teachers, students and even some head teachers was organised.

Peers from partner countries were supposed to prepare a presentation concerning all the necessary and interesting information about their schools, the places they live (towns and cities) and of course countries. Students carried this out in groups being supervised by their teachers. They met in the afternoon to introduce all the info prepared beforehand. If it weren't for the pandemic, they would have taken part in the first mobility in Poland in March so it was a kind of "an opening" to our common, future activities on-line. A week before, on the Monday as well, a Polish-Slovak team met to test the Teams application, to be certain it would work. Both meetings were educative, fascinating and contained lots of surprises.

Students started their presentation by introducing themselves. It was a real challenge as there were over 60 participants for the meeting. Following that, they showed their work and were speaking English all the time. Students as well as teachers were free to comment or ask questions. There were a number of curious students, some of them started chatting after the meeting and have now become good pen pals.

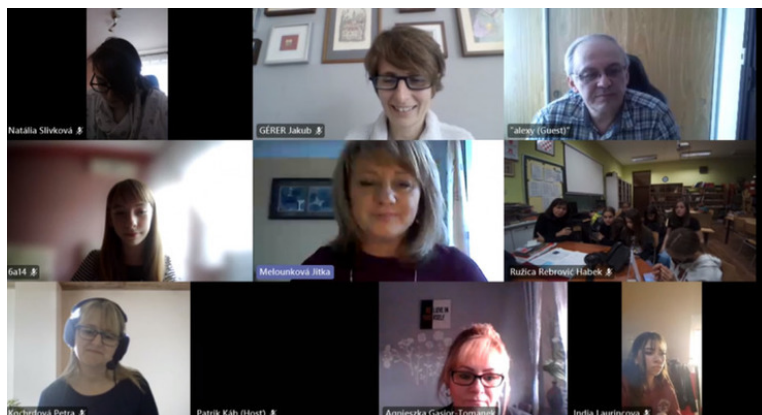
All the students carried out their job very well. After the meeting, the coordinators asked for some feedback, with excitement and joy being the most commonly mentioned words. It was a good experience to put English into practice, to exchange experience and opinions, to get to know one another. After the meeting we uploaded all the presentations to the eTwinning website, we prepared some information and presented it on our school websites and even on the home cities' websites. They believed it was a splendid meeting, very inspiring and unforgettable. It strengthened the students' belief in themselves and their abilities. It also encouraged them to take part in such meetings and take advantage of the project to improve their language



2nd Online students´ meeting

On the 22 of March 2021 professor Pavol Alexy gave a lecture on bio plastics and their use not only in food packaging. Pavol Alexy works at The Faculty of Chemical and Food Technology in the Slovak University of Technology in Bratislava.

He has been researching plastics from renewable sources for more than 20 years. His team develops special bioplastics that can decompose in nature without leaving any environmental footprint. The online lecture lasted more than one hour and 60 students and teachers attended. It was very inspirational not only for those who are interested in Chemistry or Science. Students prepared wide range of questions relating to the bioplastics. After the lecture Janka Frgelcova, an English teacher from Brezno showed us how to prepare a beeswax wraps.



BIO

About plastic, its alternative...

"The green hearts" meeting report

On March 23, 2021 it was the meeting of groups from 5 countries as part of the programme Erasmus +. The students from Croatia, Cyprus, Czech Republic, Poland and Slovakia as members of "The Green Hearts" met online on MS Teams platform. Special guest of this meeting was professor from Slovak University of Technology (STU) in Bratislava to talk about alternative for plastic.

The scientist pointed out the main dangers, which are related to use synthetic plastic. First, synthetic plastic is unknown to the nature, so it (the nature) hasn't suitable tools to cope with it, that means fast decomposition. For example, a plastic bottle can take up to 500 years to decompose.



Second, burning plastic causes emission carbon dioxide (CO₂) into the atmosphere, contributing to increase the effect of global warming. Therefore, it cannot be left to nature but we, the people, are not able to dispose of plastic without affecting the environment. With the amount of plastic we use, it will cover us someday.

The group of scientists led by prof. Alexy invented new kind of bioplastic based on used cooking oil. Professor explains that that new material is completely biodegradable. Bioplastic, placed in properly prepared soil, will be decomposed by microorganisms and will turn in biomass, water and other natural substances. Process doesn't produce CO₂, so it doesn't increase the effect of global warming and doesn't pollute the environment. Prof. Pavol Alexy: "This is our responsibility to act for the Earth. It's matter of our behaviour and discipline but we'll have to do that for our children, grandchildren and next generations."



That new technology has many advantages but is it able to eliminate synthetic plastic from our lives? Let's find out.

Slovak scientist knows that new bioplastic, which is bioplastic, won't replace all synthetic plastic. In some areas of life you cannot replace harder material, for example car parts. Bioplastics decompose from couple of months to couple years in appropriate environment. Who will scrap three-year-old car because of its plastic car parts? 50 to 60 percent plastic waste come from packaging. These are so called short-live products. Do you know that average usage time of disposable bag it's 12...minutes. Group of Slovak scientist assume that 20 to 30 percent packaging will be made of bioplastic in 10-40 years. I personally hope they are wrong and bioplastic will be in every second pack. Hundreds of kilos per minutes are now produced. The plan assumes that it will be possible to produce 4000 tons per month, until in 2021. Such increase in productivity will make it possible, during these 30-40 years.

Production technology aren't complicated. An exemplary bioplastic bottle is made of a semi-finished product in a few minutes. At the same time, we eliminate the harmful compound, which is used cooking oil and we produce bioplastic from it.

Professor Alexy, asked about the idea of creating bioplastic, says: "The creating process is trial and error method. You often have to take two steps back, to take one forward, but in the good direction. You have to understand the principles and mechanisms at work in nature and physics, because they are constant and independent of our requirements".

Everything is fine, but will the bioplastic packaging be more expensive in comparison? Our interlocutor answers: "It won't be cheaper for sure, but it will always be more ecological. On the example of dental cups, normal one cost 2-3 cents each, those made of bioplastic cost 9-10 cents each. But that's the way of thinking about future: not always economically, but always ecological".

JAKUB BEDNORZ

Earth Day 2021

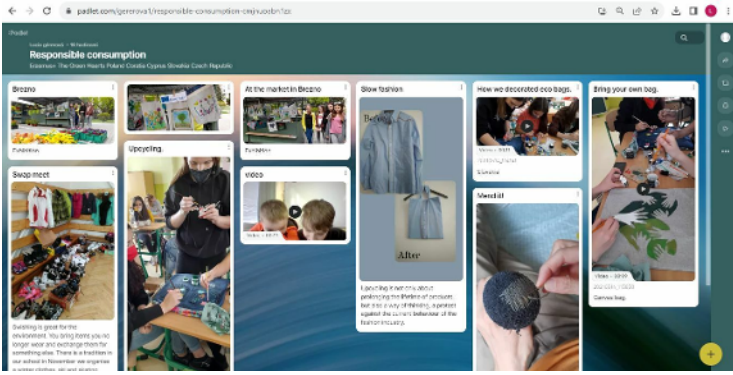
Next task done by Polish students according to our coordinator's clues: Students prepared posters promoting actions that will hopefully help to increase responsible consumption and circular economy. We have also bought 4 big, so-called "stations" to segregate rubbish in our school. We want to make our students more aware of the planet's issues when they come back there. Here are our results

Polish "Green Hearts" on TV! Below we are presenting you a link to a local programme on TV called "Wild alarmclocks". Our group was recorded while picking up litter in an area near school. We told about our project and the issues connected with the environment : <https://youtu.be/AdmGUVVuvDsPL>

In the last week of a school year 2020/22021 Polish group adapted grammatical issues(zero and first conditional) into our project. We worked in 4 groups creating posters about the future of our planet. We called it : What if? It is to make people aware what will happen if we don't care about our planet. On the link below you can find Poland schools' outcomes.



<https://sp1.siemce.pl/2021/06/22/podsumowanie-dzialan-projektowych/>



C6 - Slovakia Virtual Project Meeting

Not even the pandemic has deterred us from meeting!

17 May 2021 On the first day students attended an online lecture by Tomas Horvath on circular economy and responsible consumption. Students learnt how important it is to rework their consumption to produce almost zero waste. This is achieved by using products or services that are durable, use recyclable materials, and are repairable. Mr Horvath is from a company which produces tablet and notebook sleeves from recycled textiles and plastics. In April 2021 his company was recognised by enviroaward Atlas as the best Eco Startup.

Students played a Countdown game: where following a catastrophe they were allowed to take 5 things from their homes to start afresh at a new place. Our students reflected on their Consumption habits and distinguish between needs and wants. They worked in 8 blended groups via Zoom Break out rooms.

18 May 2021 On the second day there was an online lecture by Michaela McClelland on circular economy and voluntary simplicity. Students were interested in the subjects and asked many questions. Mrs. McClelland is a Senior global executive, with over a decade of experience in international business, in The Middle East, South Asia, the UK and Europe. Later the students worked in blended Break out rooms and discussed their shopping habits.

19 May 2021 On the third day students attended a lesson on upcycling prepared by a teacher from Brezno Janka Frgelcova. Students were encouraged to recycle and reuse not only small produce bags, single use plastic bags but also to trade or donate used toys and sports equipment and clothes which had been outgrown. Via Zoom students from Poland presented their upcycled products to their peers from partner schools. All schools prepared and gave a presentation about Nature and the countryside. They answered the questions:

What is the difference between nature, countryside and the environment?

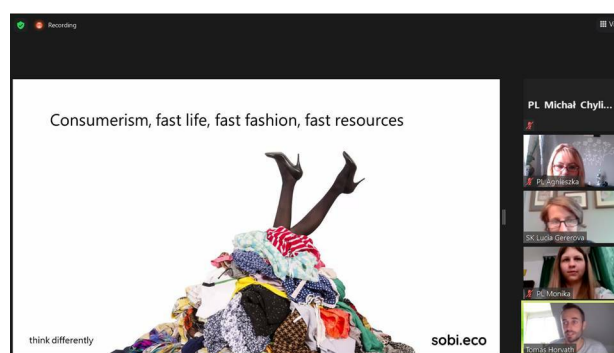
Why do you think it's important to protect our countryside and nature?

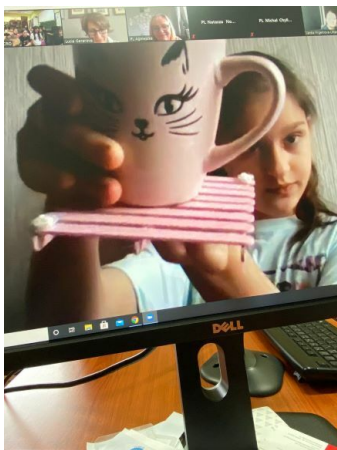
What do you do to help the environment?

Slovak students decorated canvas bags sewed at school. They organised an exhibition at the local market and raised awareness for something so important as using reusable bags.

Different methodologies were used: international workshop, discussions in Zoom Break out rooms, games.

Students filled in an evaluation form.



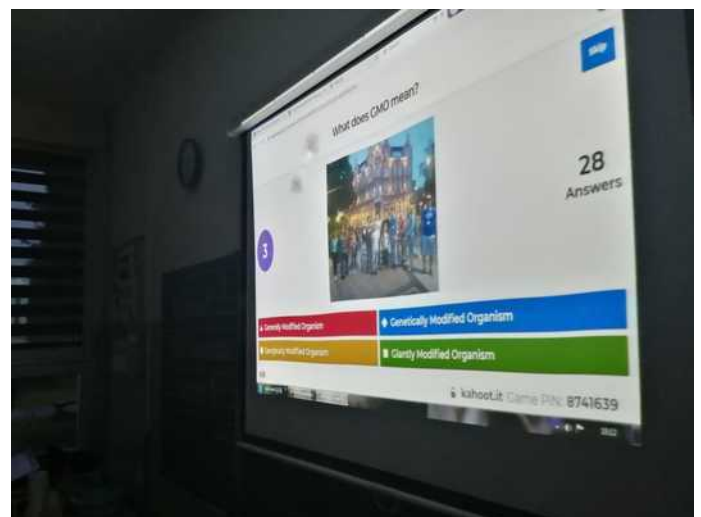
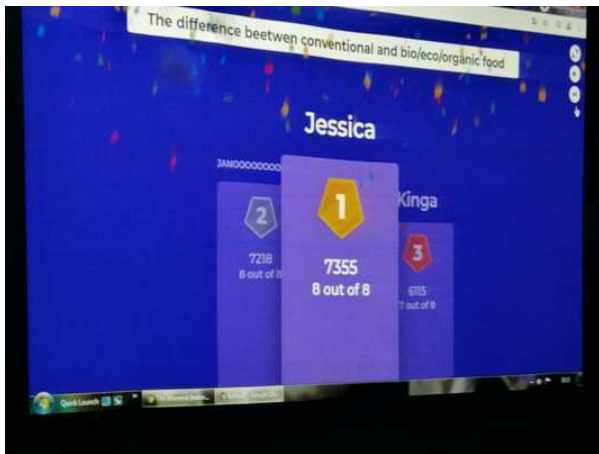


C1 - Poland Project Meeting - Food and Healthy Lifestyle

Students examined their own eating habits and developed plans for improving them. They talked about nutrients, proteins, carbohydrates and indicated what and how much they should eat to be healthy. In addition to various lectures and quizzes, students carried out a questionnaire to check the degree of their knowledge concerning food packaging, whether they try to reduce food waste in their household, whether they do the shopping with a shopping list, use leftovers, or plan their menu in advance.

The students studied the chemical safety of food packaging. They discovered that Plastics can transfer chemicals into packaged food and beverages. They prepared posters about Chemical migration. Pupils also visited an educational center aimed at promoting a healthy lifestyle. The founder of the center, an advocate for healthy eating Mr. Bernard Kowol, tried to show young people how to spend their free time in nature without the Internet and mobile phones. Students hosted a waste-free snack day. Snack packaging, disposable bottles, juice packs, and other rubbish were strongly discouraged. Single use packaging is one of the biggest environmental challenges. Students studied how packaging waste effects the environment. They were on a mission to raise awareness about how important it is to reduce our waste. Food packaging makes up to 40% of all the waste that ends up in landfill sites. In mixed groups students were looking for information about the Chemical safety of Food packaging. They prepared posters in English on this subject. Students studied the environmental impact of five different soft drink containers (glass, plastic, metal, aluminium and recycled aluminium). They found that Recycled aluminium cans were the least environmentally damaging single-use containers. After a " You are what you eat" lecture Dr. Diana Kitala explained that obesity represents a risk to health and that childhood obesity has increased dramatically during the past decades all over the world. She taught students how to calculate BMI. Students also planted trees, took part in a tour of the city museum and the Center of Traditions, visited Krakow and Wadowice. The participants were 11-17 yo students and 7 teachers from CZ, PL and SK. Partner schools from Cyprus and Croatia could not attend this meeting because of a decision by the Ministry of Education, Civilisation, Sports and Youth of Cyprus and Croatia which discouraged schools to travel abroad for any kind of activity as the Covid 19 hygiene conditions prevailing in the country didn't allow that.





#Erasmus Days 2021

OCTOBER 2021

Pupils rejoined the #ErasmusDays campaign, which aims to present the Erasmus + program, highlight its diversity and present its results. Students who returned from Poland shared their experiences with their classmates and prepared decorations made of natural materials. The students were also encouraged not to buy wreaths of artificial flowers, which end up in landfill sites with no opportunity for recycling, as part of the upcoming All saints holidays. The Green Hearts project was mentioned on the official webpage of erasmusdays.eu



Tree Day

Czech school managed to celebrate the International Tree Day by planting trees in the woods near our town. We chose oaks and beeches to help renew our countryside after the attack of bark beetle. We are looking forward to watching our trees grow hoping to please all passers-by.



Christmass gif wrapping and Beeswax candles

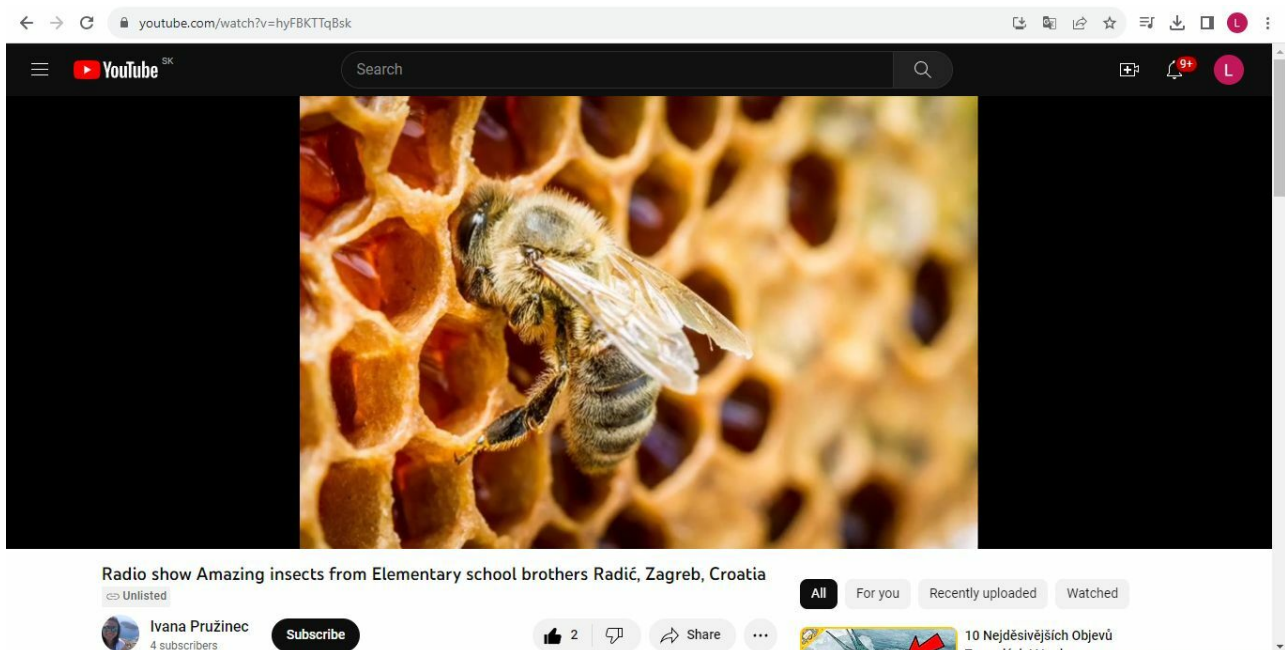
Students made Eco-friendly Christmas gift wrapping and the Slovak teacher Janka Frgelcová made eco-friendly Beeswax candles. She explained that Beeswax candles not only give a pleasant scent to the home but also purify the air. Students learnt that Bees have to produce about 1.25 million small wax scales for one kilo of wax. However, wax is only produced by young workers aged 12-18 days. Mothers and drones have no wax-producing glands at all. The photos were placed on Twinspace. The next day all schools in Slovakia switched to remote learning.



Radio

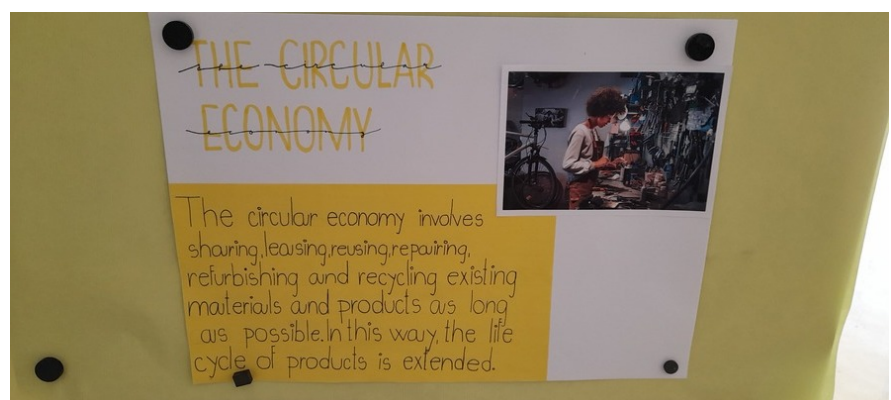
A Croatian Radio team recorded and edited a radio show which includes an interview with an environmental expert. He talks about the importance of bees for humanity and how to make insect hotels. Students presented these activities on Twinspace. Students from other partner schools listened to the show in class. The radio show was delayed due to Covid, students were constantly going into isolation or online classes. Authorities imposed a ban on mixing pupils from different classrooms.

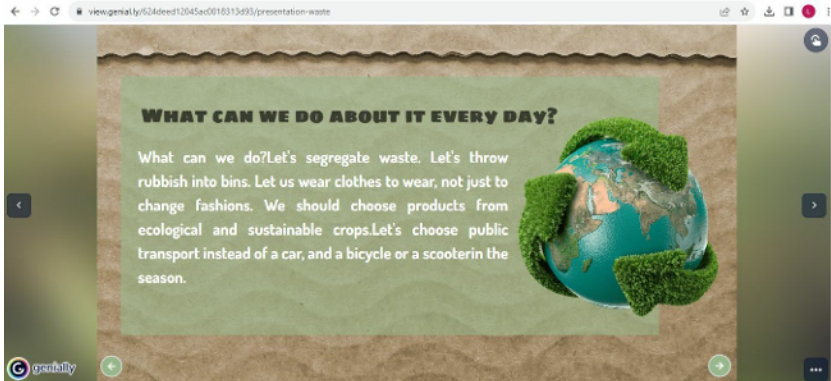
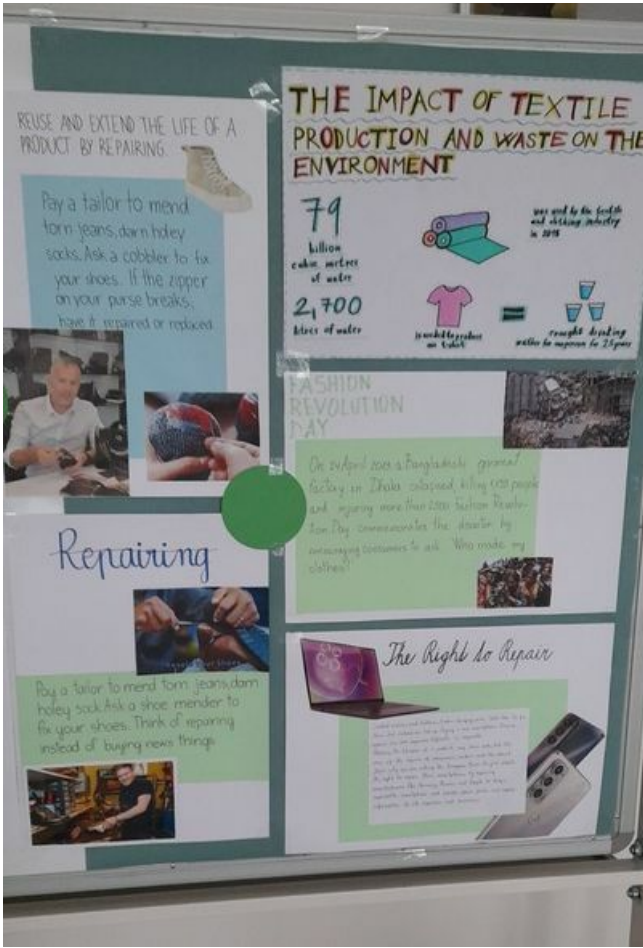
<https://www.youtube.com/watch?v=hyFBKTTqBsk>



Earth Day 2022

Students celebrated the Earth Day by making posters promoting actions that help in increasing responsible consumption and circular economy. They advocated these principles: refuse things that you don't need and things that you can't recycle. Think of sharing, renting and borrowing instead of buying. Zero waste - Students read a lot about the topic wondering if it is a fashion, lifestyle or a futuristic trend. They prepared lots of posters reminding us of the 5R's rule and ways of giving a „second life" to clothes and gadgets we use everyday. They prepared an exhibition and shared their work.





C2 - Slovakia Project Meeting - Responsible Consumption

The project meeting in Brezno Slovakia, which took place from May 9-13, 2022, was focused on responsible consumption.

The students learned a lot about the impact of textile production on the environment, how much water and pesticides are used when growing cotton. They realized that cheap and low-quality clothes do not last long and end up in landfills. They discussed that natural resources are not inexhaustible and should be used wisely so that people benefit from them not only today, but also in the future. They prepared presentations on this topic.

Young people were looking for ways to give old things a second chance, they learned how important it is to repair, improve, remake them. They were rediscovering what their grandparents have known for a long time - that old things are exchanged, donated, inherited, leaky socks are stitched, even if in today's consumerist era it is not popular and worn things are often thrown away.

As part of creative workshops, students gave old chairs a new look. They decorated bags made from old jeans. They organized an exchange not only of clothes, but also of board games. In addition to teaching and learning at the school, they visited the outlooking tower in Brezno, the Forest Open-Air Museum in Vydrovo and the Dobročský Primeval Forest, where they got to know its unique ecosystem. They met with the deputy mayor of Brezno, Mr. Martin Juhaniak, to whom they presented this international project.

Our video: <https://www.youtube.com/watch?v=oi7NzWb06Uw>

TV Hronka: <https://www.youtube.com/watch?v=f90t11cWzRg>





The Day of open Doors in Slovakia

School coordinator presented all activities that took place between september 2020 and June 2022. 3 students talked about their stay in Poland in October 2021 and what they learned during C1 Learning activity. The coordinator played two videos from C2 Project meeting. The guest Teachers wanted to know how to start an Erasmus project.



World Oceans Day - Cyprus, Slovakia

A group of students from Cyprus interviewed Mrs. Stefani Prokopiou, a marine biologist from the environmental organisation AKTI, about the pollution of the sea. They talked about the hazard from micro plastic fibers on human health.

Marine pollution - classroom demonstration in slovak school. Plastics are a major source of global marine pollution. Tiny plastic fibers from clothes and microplastics, very tiny pieces used in beauty products, easily pass through water filtration systems and end up in lakes and seas. The 20 June 2022 Students in the year 8 placed a full bucket of water on the floor and put in different things like detergent, toothpaste, dirt, oil, wrappers. Oil spill simulator. Students observed and made a list of things which are not possible to remove from water. They took pictures and shared it with their partners on Twinspace. They invited school children from the year 1.

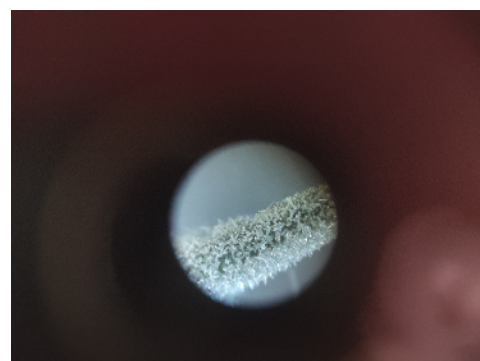
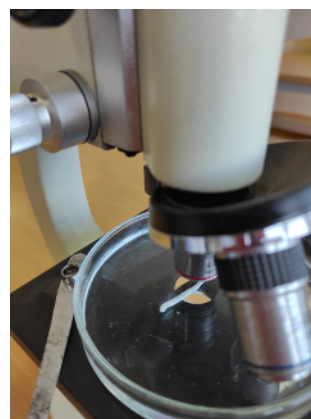


eWaste

At Slovak school with the Chemistry teacher Mrs. Majerníková year 8 students watched a video about eWaste. Some students presented information they found out about gold, platinum, and palladium. They watched another video about the properties of iridium, read about the properties of rhodium and looked at jewellery made from it. They did an experiment: reducing silver from silver nitrate. They observed it under a microscope.

The aim of the activity was to make people aware that the demand for precious metals to produce electronics, medical devices and other uses is increasing, but that their resources are gradually diminishing. As waste, metals pollute the environment and threaten human health. One solution to this problem is recycling from e-waste, which not only helps to recover these metals but also to reduce the amount of e-waste and thus the risk of environmental pollution. The pupils had the opportunity to realise how the rapid modernisation of electronics has an impact on the amount of waste that accumulates. The videos on both iridium and rhodium were in English.

The activity was included in the topic Metals, semi-metals and non-metals in the Curriculum of the Year 8 students.



Students from the Czech Republic and Poland organised Car free day. Students came to school on bikes, scooters, not by car with parents.

Slovak Students visited facility in Banska Bystrica which recycles eWaste. They learnt about different types of materials including precious metals, which can be recovered from eWaste. The students took part in The festival of science - European Researchers' Night. They participated in many activities and attended a lecture about renewable resources of energy by Peter Bystriansky.



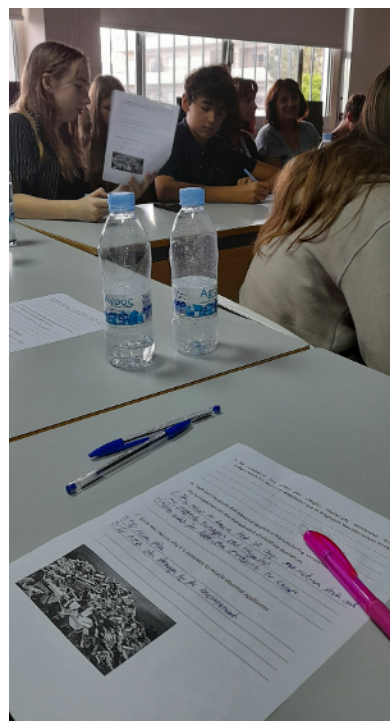
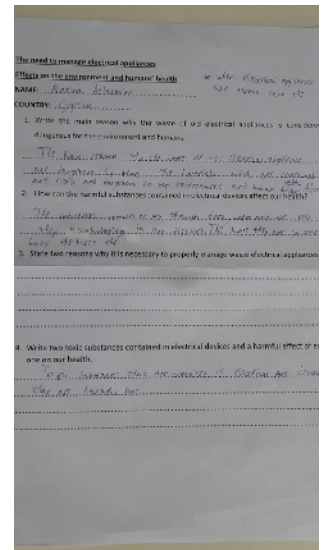
C3 - Cyprus Project Meeting - Waste, Sustainable cities and communities

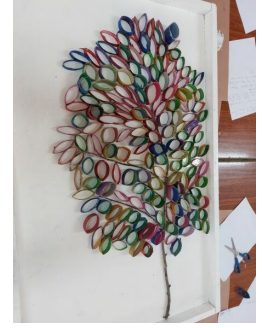
The first lecture in English about plastic waste in the seas and its impact on the environment was prepared by Mrs. Demetra Orthodoxou from the non profit organization Akti. The students learned that plastic waste in the ocean disrupts marine ecosystems, moves to the open sea, where it accumulates. These plastics never completely decompose, they just break down into smaller and smaller parts. Together they tried to figure out how to prevent the creation of such waste and also explained the principles of the circular economy. The fact that the young people were interested in this topic is also proven by the number of questions they asked the lecturer. Another topic of the project meeting was electronic waste. The presentation was prepared by students from Cyprus. Charis and Stefanos warned their peers that by improper separation and recycling of e-waste heavy metals such as lead and mercury are released into the environment.

On Wednesday, the students visited the Koilani environmental center, which focuses on supporting sustainable agriculture and winemaking. In addition to expert lectures, students had to fill in a work sheet concerning the density of grapes, they did measurements in the vineyard, they tested soil moisture, soil acidity and temperature. They had the opportunity to taste sweet products Siousioukos made from grape juice and dance the traditional grape dance.

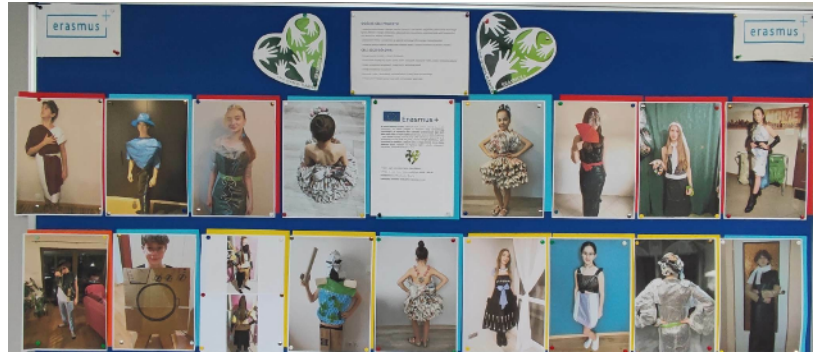
On the last day there was an interactive seminar from a specialist about waste and a presentation of how the Limassol Municipality applies recycling in their city. In Friday's lecture, Marios Aristotelous from the Limassol municipality's waste management department showed the students how they sort waste in their city. He himself admitted that they are looking for inspiration in European cities, which are significantly further ahead in waste sorting and recycling. Then there was a workshop where the students made a Tree of friendship from recycled paper. They then played the role-play game called „Businessmen against the activists“. Their task was to save a small wood because the local council wanted to build a big shopping centre on the land. The students got involved in their tasks and enthusiastically discussed the problem. The host school created a waterfall from plastic bottles in the school yard, one of the teachers explained that drinking water in Cyprus is very precious.







The Carnival



Students prepared masks from Recycled materials. Zero waste - Students read a lot about the topic wondering if it is a fashion, lifestyle or a futuristic trend. They prepared lots of posters reminding us of 5R's rule and ways of giving a 'second life' to clothes and gadgets of everyday use. They prepared an exhibition and shared their works.



Earth Hour

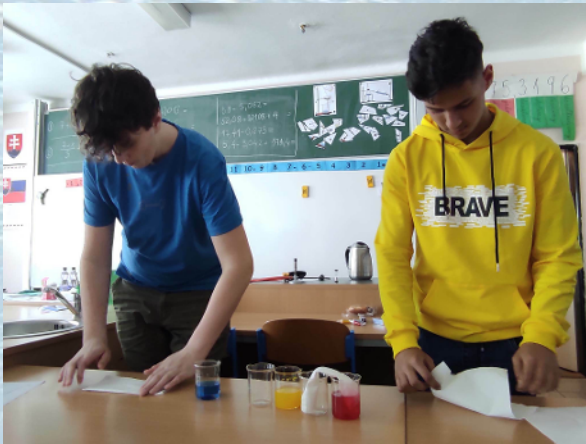
The program for the pupils of 5.A was prepared by pupils of all classes of the Year 9. Adrian Hesko gave a lecture about alternative fuel cars, Emka and Dominika prepared a quiz about recycling and also a fun quiz about Harry Potter. Ninka, Nelka, Miška, Tarka and Tánička accompanied the fifth-graders on a treasure hunt and a game of hide-and-seek. Students ended the lovely and fun evening with refreshments (pizza was a hit). Together they discovered that they did not miss electricity, mobile phones or any of the conveniences of this time for a whole hour. All they needed were candles, pleasant company and good cheer. "Best day at school! It was great! Thank you for the experience!" This was how they said goodbye to the fifth and ninth graders as they left the Earth Hour evening event at 7:45 p.m. on Friday night.



World Water Day

Ninth, Eighth and sixth graders commemorated Water Day in their Maths and Chemistry in Life classes. In one place for one reason, mathematics, chemistry, physics, art and biology came together to honour the planet's most precious liquid, WATER. Diameter, addition, multiplication, division, conversion of units of volume were hidden in drops of water. Pupils guessed and then through experiments verified how much water is wasted when brushing teeth and the water is left running. They established that it is 20 to 50 hl of water in a year. Attention! Turn off the taps. Do you know how many drops of water can fit on a 50 cent coin? Sixth-graders know. And they'll even remember what the adhesion of water drops is.

In Chemistry in Life, they have used the properties of water, such as buoyancy, density and fluidity, to make "magic" with paint and almost create works of art. Thank you to teacher Majerniková for preparing these interesting activities.



Renewable Energy Sources

Students studied the possibilities of alternative and renewable energy sources. They could choose the sources that interested them. They presented their findings in the form of PowerPoint presentations or posters to their classmates. It was beneficial that they presented not only the positives but also the problematic aspects of these sources. Together with their Chemistry teachers, they selected the ones that interested them the most and the students from Year 9 gave a lecture to the pupils of Year 5 as part of peer education. Topics such as Hybrid drive and geothermal energy were a success. The aim was to inspire a responsible and critical attitude towards the use of energy sources. To know and look for opportunities to use alternative and renewable energy sources. To improve their presentation skills. To arouse interest in the subject among younger classmates just through peer education. It was beneficial that many of the information resources used by the pupils were in English, so they could put their knowledge of the language into practice and show their younger classmates how important knowledge of foreign languages is.

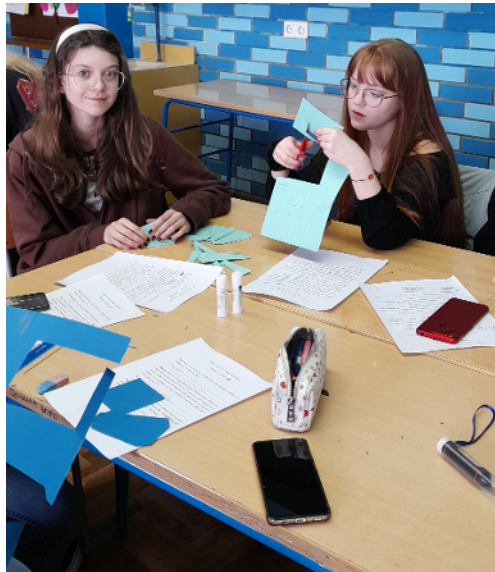
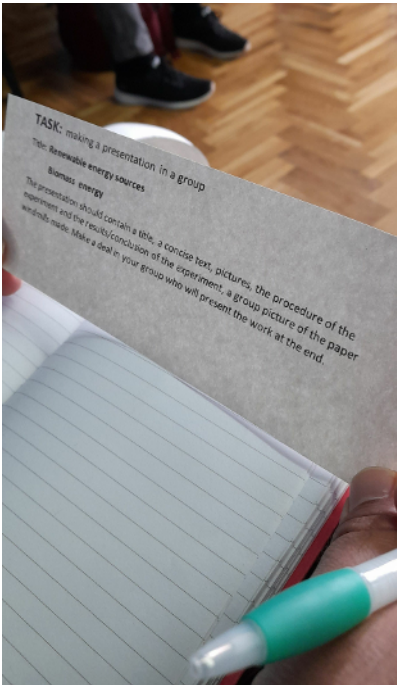
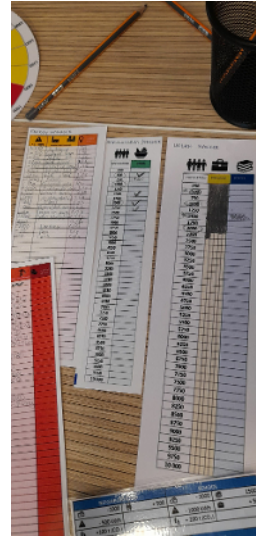
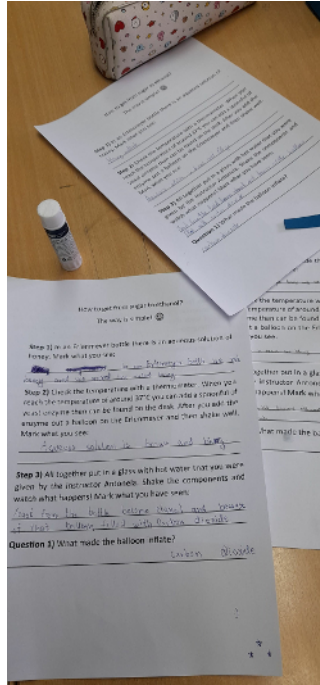


C4 - Croatia Project Meeting - Clean Energy

The third project day started in the chemistry classroom where students were divided into mixed working groups. Each team had a representative from one country. Together they listened to a lecture on renewable energy sources, given by a Croatian eighth grade student, Antonela Karačić and her chemistry teacher Marija Sokolović. Then, like born chemists, they set to work on an experiment to produce ethanol - an environmentally friendly fuel that requires only water, honey and yeast. The students achieved the right result and the balloon above the cone bank gradually inflated. This was followed by the Windmills workshop, during which students had to show a lot of manual dexterity. Their task was to make a small paper model of a windmill out of brightly coloured cardboard. They then deepened and consolidated their knowledge of different renewable energy sources while creating their own group presentations.

On Thursday an important moment of the day was the Erasmus+ project certificate ceremony, which took place in the presence of the school headmaster. The students spent the afternoon in Maksimir Park - in the zoo's education centre. They played a team game where they had to build a functional eco-city. The energy manager, the farmer, the city planner and the mayor had to agree amongst themselves on how to use natural resources and how to give people jobs in a way that minimises their carbon footprint. On Friday, students in mixed teams presented topics related to renewable energy sources: water, wind, solar and biomass in the school library. They visited primary school classrooms where young pupils worked hard and happily on ecology-related artworks





Earth Day 2023

Air pollution

Chemistry teachers in collaboration with an environmental organisation organised an expert talk where students had the opportunity to learn more about air pollution. Students made a drawing or a comic sketch that showcases the pollution issues on our planet. They looked at the levels of pollution in their area and quickly researched different actions that they can take to keep the environment free of pollution. Mr Martin Krempler from the Slovak Hydrometeorological Institute, responsible for air quality monitoring, visited our school in Brezno. Pupils learnt that air pollutants are divided into 2 groups, gaseous and particulate and which human activities pollute the air most. Pupils learnt that the air is not always cleaner in the countryside, as people use wood as a source of heat. Head of the Air Quality Monitoring Department of the SHMÚ presented his contribution at the workshop of the Smart City Academy. The workshop addressed air quality issues and ways to improve it. The students from all schools prepared posters about Air pollution and problems caused by human activity.

Acid rain and sulphur dioxide

During Chemistry classes in a simple experiment, the students proved that oxygen makes up about one-fifth of the air. Industry, energy and transport are sources of sulphur dioxide, which has negative effects on human and plant health. When mixed with rainwater, it causes acid rain, which affects the composition of water and soil. The burning of matches produced sulphur dioxide, which reacted when mixed with water. The pH changed to acidic. Evidence of this was the change in the pH indicator methyl orange to a pink colour. Sulphur dioxide was prepared by burning sulphur and its action resulted in the discolouration of the flower exposed to it.

The aim was to establish the composition of the air. To understand the negative effect of sulphur dioxide on plants through practical demonstrations. To build awareness and protect the air. To critically evaluate the production of sulphur dioxide in industry, transport and the power sector. To generate interest in finding eco-friendly solutions in these areas. In Poland students prepared a sketch demonstrating their idea of the consequences of air pollution. They placed the photos of their sketches in the presentation about reasons and consequences of air pollution. They tried to show the problem of air pollution in their region and drew special attention to the problem of pollution from transportation.



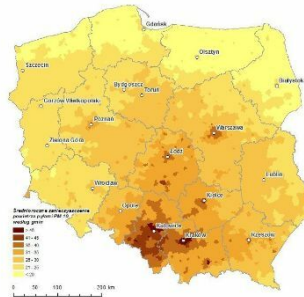
Transport and air pollution

The transportation sector also contributes to emissions of air toxics, which are compounds that are known or suspected to cause cancer or other serious health and environmental effects. Examples of mobile source air toxics include benzene, formaldehyde, and diesel particulate matter.



Air pollution in Poland

As you can see, Śląsk is the most polluted place in Poland. It is like this because in the previous century in this region was a lot of coal mines and factories. In this region air pollution levels can be above normal for many days.



Don't pollute the air!

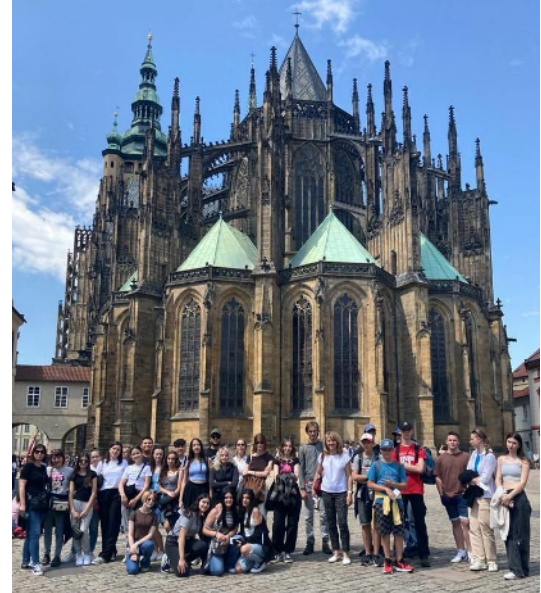
- Soot and smog in the air are dangerous for our lungs and bloodstream and cause many health problems
- Acid rains and smog damage the soils and affect agriculture



C5 - Czech Republic Project Meeting - Transport and Air Pollution

Air pollution and Environmentally friendly transport was discussed. An exhibition where pupils presented their vehicles of the future made from recycled materials was held.

There was a chemistry class presented by Michaela Cakmak dealing with the impact of traffic on the environment, our health and lives. The students were testing the properties of CO₂. There was a practical experiment and some engineering outside school. As the town of Vodňany is a "fishing town" with a lot of ponds nearby breeding fish, there was a visit to the Faculty of Fisheries and Protection of Waters in Vodnany. Students observed 3 samples of water under the microscope: production pond and waste water treatment pond. They learnt that climate change together with human activities are disrupting the functioning of the aquasystem. There was a lecture on fish transportation, history, effectivity and impact of fish farming on the environment. This last meeting was organized in such a way that the participating teachers had the opportunity to evaluate the whole projects progress and implementation. The students and teachers filled in the final evaluation questionnaire. The international vocabulary booklet was prepared in its final form and teaching and learning materials for Environmental Education were collected.





The Day of open Doors

School coordinator presented all activities that took place between september 2020 and June 2023. The school hosted the head of the education department, the head of the Culture Centre, the head of the House of Culture, parents, teachers from neighboring schools and school workers.



Conclusion

The Green Hearts project was implemented between 2020 and 2023. The project involved five European partner countries: the Czech Republic, Poland, Croatia, Cyprus and Slovakia. The aim of our project was to innovate the teaching process in the field of environmental education. To develop students' environmental literacy, we used a Learner-centred approach that exploits their natural curiosity. The target groups of the project were students aged 12 to 18 and lower secondary teachers. Students from partner schools tackled tasks in the core areas of environmental protection - Responsible Consumption, Waste and Sustainable Cities and communities, Renewable Energy, Transport and Air Pollution, Food and Healthy Lifestyles. Throughout the duration of the project, activities were undertaken for each topic as planned by the coordinators and head teachers. Methodologies, worksheets, quizzes, a consumer survey, models of wind power plants, alternative fuel cars, videos on illegal landfills, presentations on the environment of each partner country, transport and heating methods and their impact on air cleanliness were developed for each topic.

We monitored the acidity of rainfall, organised a clothes swap and board game exchange, created carnival of masks made from recycled materials. We created a vocabulary booklet of environmental terms in the languages of the partners and scripted a short play on plastics and their impact on the environment. Exhibitions of products made from recycled materials were organised at the individual project meetings - bags made from old clothes, restored old chairs, a waterfall made from used plastic bottles and model cars. Other activities were also held on the occasion of various environmental holidays: World Ocean Day, Earth Hour, Earth Day, Mobility Week, World Water Monitoring Day, Car Free Day. Students were introduced in an experiential way to the different global sustainability goals in line with the UN initiative called Agenda 2030 through the implementation of educational and training activities, thus contributing jointly to the results and achievement of the project's goal.

Students were active in environmental issues, dealing with topics such as recycling, reusing and repairing items, learning what they can do to make our air and water cleaner and how to reduce illegal dumping. They were involved in improving the environment in their neighbourhood- cleaning up around schools, mapping illegal dumps, sorting waste, using waste material to wrap presents, making beeswax candles. They developed their talents, creativity and imagination in the creation of different documents, improving their presentation, language, social and digital skills. They grew to know the beauties of their home country as well as their partner countries, made new friends, and had the opportunity to compare the culture and way of life in different European countries and their education systems.

Teachers developed their personal and professional competences - linguistic, IT, multicultural, innovative thinking, creation of European projects, use of student-activating teaching methods. Didactic materials and teaching aids were created before the short-term exchanges of groups of pupils occurred. The developed didactic material, teaching aids and activities in the field of environmental education were also presented at Doors open days to teachers from other schools and professional members of the public. The Green Hearts project contributed to the internationalisation of the partner schools, to improving the classroom atmosphere, to using innovative and activating teaching methods and to improving the attitude of students, teachers and school communities to environmental issues and raising the awareness of their own responsibility for improving the quality of life on our planet. Despite the many constraints related to the COVID 19 pandemic, the partners in the project actively moved forward. Students, teachers and invited experts met in an online space. The Green Hearts project contributed to the development of the partners' schools in the fields of environment, climate change and civic engagement.

The results and outputs of the project had an impact on the quality of the educational process and the professional development of the teaching staff. Learning and teaching activities were linked to the professional development plan of teaching staff in the partner schools.

