GREEN GUARDens

Environmental Sustainability and Green Entrepreneurship Competence-Building in Kindergartens

GreenGUARDens of the future

An Audiovisual Implementation Report

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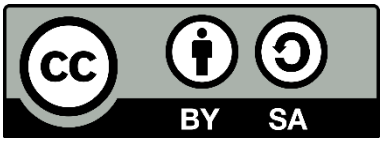

The GreenGUARDens project and what it has achieved

The Green GUARDens project (Environmental Sustainability and Green Entrepreneurship Competence-Building in Kindergartens) is an Erasmus Plus project which targets kindergarten teachers and their students (3.5 to 6 years old), including those who are Deaf or Hard-of-Hearing (hereinafter: DHH).

The GreenGUARDens project is aligned with the United Nations Sustainable Development Goals (SDGs), with the aim of helping kindergartens become more sustainable and encouraging teachers to be role models for their students and encourage environmentally conscious behaviour in them. This project aimed to enrich the teaching experience and promote sustainability in the classroom by incorporating experiential and gamified learning methods into formal education.

All project activities and actions were based on three main goals

- To cultivate an understanding of environmental sustainability, while fostering the development of young environmentally conscious citizens.
- To foster the democratisation of climate action by engaging children, including DHH students in the process.
- To take environmental sustainability and green entrepreneurship education a step further, by approaching kindergartens as enterprises with Corporate Social Responsibility rather than merely educational institutions.

This Audiovisual report will show how the consortium, with the help of kindergarten teachers and their students, piloted prepared pedagogical sequences with gamified activities in kindergartens in Germany, Cyprus, Romania, Italy and Serbia.

It will present the impressions of teachers and children and and showcase their hard work during the 4 months of piloting. Also, every advice received from kindergarten teachers, as well as their experiences and practices will be selflessly shared with the desire to motivate you, the readers, to start similar activities in your kindergarten or while playing with your children. **Enjoy reading!**

Local Training Activities in kindergartens

Before proceeding, let's see what Pedagogical sequences are

The partner team developed 16 Pedagogical Sequences with gamified activities and small experiments based on ocean pollution, air pollution and deforestation and shared them with kindergarten teachers in 5 countries to apply in their work with children.

Each of the pedagogical sequences consists of **short description** of the topic and activity with **learning outcomes**. Also, the **methodology** was proposed to the teachers which implies storytelling, hand-on activities, discussions, interactive activities, expert guests. No less important is that the users of the pedagogical sequences can see which **SDGs** the material address to.

Also, the pedagogical sequences offer **detailed steps** for the realization of the activities and clarify which **materials** are necessary for the activities.

It is also important that pedagogical sequences contain notes on how to ensure **accessibility and inclusion**, but also **sustainability tips** with the help of which kindergartens can increase their level of environmental sustainability.

Related subjects / thematic areas

- Geography,
- Economics,
- Civic Studies

SDGs addressed

This lesson plan facilitates the realisation of the following Sustainable Development Goals (United Nations, 2015):

Duration

- Approximately 60 minutes

Age of learners

- Kindergarten age (3 - 6 years old)

Level of difficulty

- Easy. Suitable for preschool children. No prior experience required.

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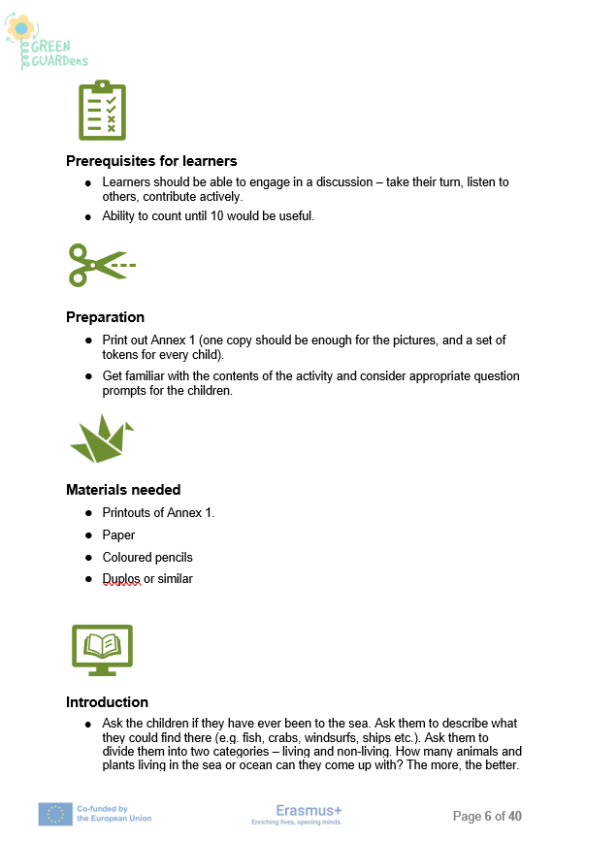

Prerequisites for learners

- Learners should be able to engage in a discussion – take their turn, listen to others, contribute actively.
- Ability to count until 10 would be useful.

Preparation

- Print out Annex 1 (one copy should be enough for the pictures, and a set of tokens for every child).
- Get familiar with the contents of the activity and consider appropriate question prompts for the children.

Materials needed

- Printouts of Annex 1.
- Paper
- Coloured pencils
- Duplos or similar

Introduction

- Ask the children if they have ever been to the sea. Ask them to describe what they could find there (e.g. fish, crabs, windsurfs, ships etc.). Ask them to divide them into two categories – living and non-living. How many animals and plants living in the sea or ocean can they come up with? The more, the better.

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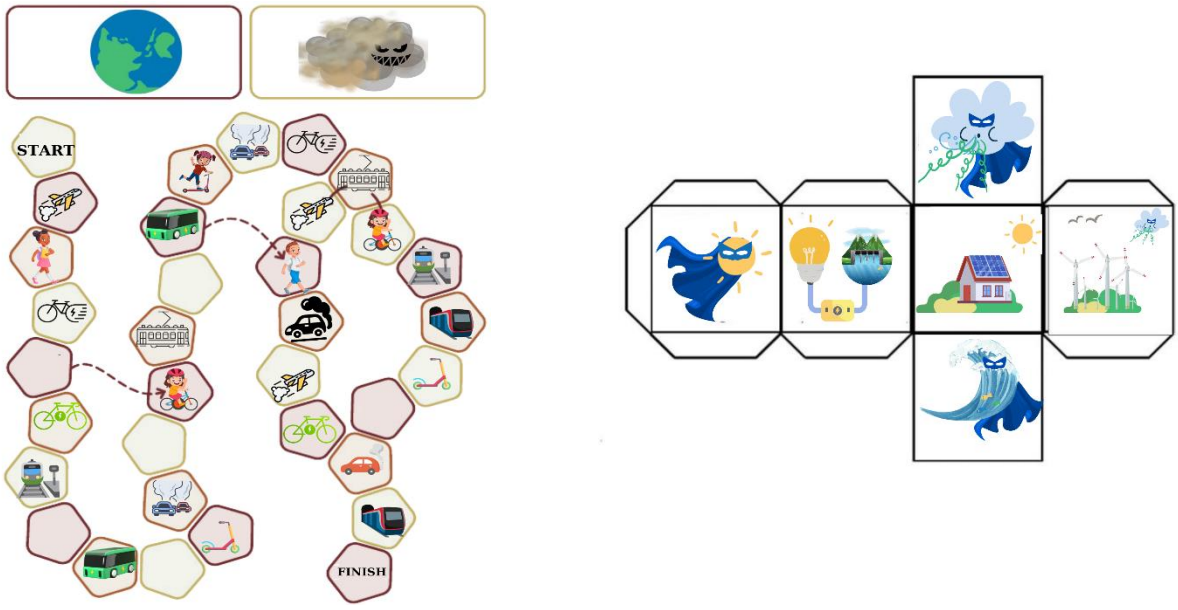
The topics of air and ocean pollution, along with the issue of deforestation, are presented to children in an engaging way, using highly interactive games.

Role plays were designed - so children found themselves in the role of plants and animals in order to understand how the food chain works. There were also **treasure hunts** - through which children tried to find all the factors that pollute the air. **Memory games** were also developed, with the aim of having children match pairs - one solution for ocean conservation. Suggested activities included also visits to environmental organizations, a **trial simulation**, a trip to the forest or nature, **planting** and caring for plants.

For some activities, kindergarten teachers were advised to make all the play materials together with the children, but there were also ready-to-use resources, pictures and stories.



Board game and cube within Air-pollution topic

Kindergarten teachers had complete freedom to adapt the pedagogical sequences to suit the children's age, the national framework, as well as the working conditions in the kindergarten. Also, teachers could modify the duration of activities and choose which games and experiments to try, considering the children´s prior knowledge and current interest.

The piloting unfolded as follows…

During the creation of the pedagogical sequences with gamified activities, the consortium consulted local education experts and kindergarten teachers, in order to be sure that all

materials and planned activities would be interesting for children and actually applicable in kindergartens.

Their comments were taken into account and after adapting the pedagogical sequences with gamified activities to national frameworks, the piloting was good to go.

The local implementation in Germany, Serbia, Italy, Romania and Cyprus lasted from February to June 2024. The quality of the materials was beautifully affirmed by the initial photographs, the enthusiastic feedback, and the children’s delightful reflections on the activities and the new knowledge they gained.

Deaf or Hard-of-Hearing students were part of the activities, as well as children who needed additional support from their teachers and friends to get involved in the activities. The children helped each other, so there was no fear that cooperation would be difficult for anyone.

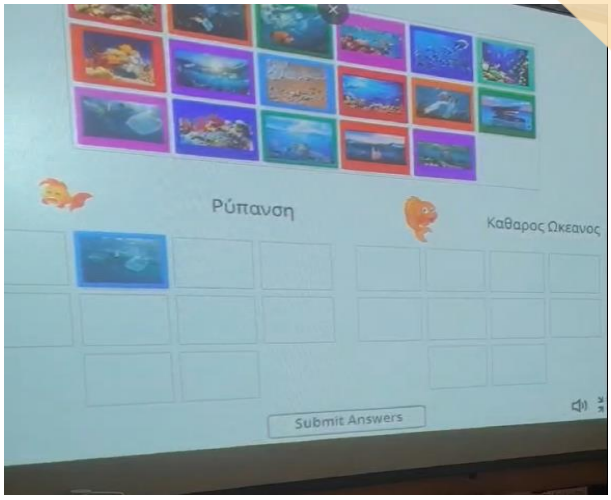
A total of 50 teachers and 17 kindergartens piloted pedagogical sequences. 294 children (including 27 who are DHH and 3 children with autism), aged 3.5 to 6 years, participated in the gamified activities.

The first photos and impressions of educators showed that the piloting of the activity started in the best possible way. You will find below that it ended in an even better way.

Cyprus and the focus on ocean pollution

Citizens in Power (CIP) pilot-tested the pedagogical sequences with 3 kindergarten teachers and 32 children in one kindergarten school.

Children in Cyprus were most interested in activity plans concerning **ocean pollution**, but also in its **protection**. Children had the opportunity to understand the different threats that oceans face, as well as why these threats were critical, and what actions they could take to help protect the oceans.



Source: Citizen in Power

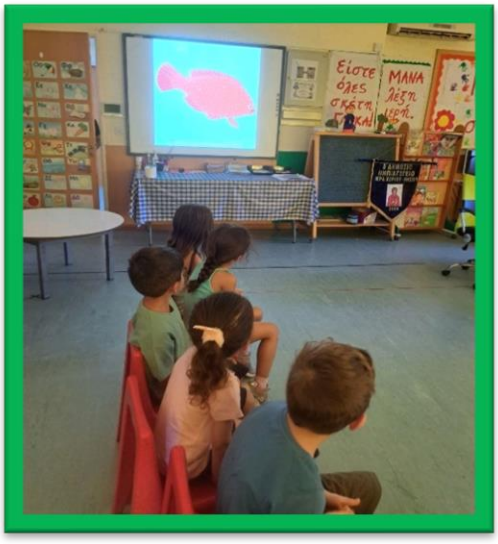
Teacher's words

> One memorable moment was during the digital treasure hunt when the children found an item that was a pollutant. Their excitement was really nice to see, and they cheered every time one of their classmates found an item that was polluting. It was rewarding to see them so engaged and supportive of each other.

Before initiating the activity, the kindergarten teachers guided the children through the daily routines, and helped them feel comfortable in a familiar environment, and then gradually introduced the topic of the day. This approach stood out as an example of good practice, which enables an easier transition to a new topic, that is, it helps children to prepare for acquiring new knowledge more easily.

To transition from the introduction to the activity, the teachers would ask the children a "leading question", inquiring about their experiences during the weekend and whether they enjoyed themselves. This question was aimed at capturing the children's attention and create a personal connection to the lesson.

Sharing a personal story or conclusion with the children is also a good approach to indicate the context in which the activity develops. For example, the teacher shared with children that she had seen a lot of trash thrown on the seashore and expressed her concern. This was an introduction to the story of Alba the Fish who was also worried and sad that her house was full of all kinds of garbage.



Source: Citizen in Power

By giving a name to the fish, it made the situation more personalised, making it easier for children to relate to the theme through the character and its emotions. Additionally, the inclusion of clean coasts and oceans photos, as well as highlighting the pollution aftermath of careless human behaviours/actions, were also beneficial in getting the messages across.

Visual presentation (pictures, illustrations, drawings) helped the children to understand more easily the difference between a clean and polluted ocean, as well as to understand the factors that contribute to ocean and coastal pollution.

What did the children do after the activity?

They created short "awareness campaign" slogans. These slogans raised awareness about environmental conservation and informed others about how to protect the oceans. This creative activity enabled the children to combine what they had learned and express it in a way that could motivate others to take an action, too.

Teacher's words

The idea of teaching sustainability to young children convinced me to take part in the GreenGUARDens project. Introducing such an important topic at an early age can have a lasting impact on children's attitudes and behaviors toward the environment. However, it is important to say that what we teach here should be also practiced at home by the parents. **Education does not just stay at school.**

It was worth being part of the GreenGUARDens project because the children were very enthusiastic to take part in the activity. I saw a lot of engagement from the children and willingness to participate in the activity. Additionally, I gained new teaching techniques that are adaptable and useful for a lot of subjects, improving my overall teaching practice.

Hear what our teachers had to say!

Video available on: https://youtu.be/BXuzld22MHE

Experiences from **Germany**

BUPNET implemented pedagogical sequences and gamified activities with 5 kindergarten teachers in 1 kindergarten in Germany. 40 children participated in the activities.

The topics in focus were the importance of **sustainability, separation** and **recycling** of **waste**, **animal and plant life**, and **renewable energy sources**. Kindergarten teachers included virtual tools in their work with children that enriched the implementation of pedagogical sequences. Interactive environmental education included a virtual tour of a garden, which resulted in great interest and excitement among the children.

In this way, children could virtually plant trees and other plants, watch them grow and take care of them. Also, animations helped them distinguish between different types of plants, and animals. Children could observe animals in their natural habitat, and understand why it is so important to preserve their environment.

Teacher's words

> A particularly memorable moment experienced during the GreenGUARDens project was when we carried out a module on the animal and plant world with the children. At first, the children were a little reserved, but when they discovered the interactive tasks and games, that was a game changer. The excitement on their faces as they planted virtual trees and observed animals in their natural habitat was simply wonderful. The moment when they began to understand and discuss the importance of biodiversity was particularly beautiful. This active participation and their pride in what they had learned was a great highlight for me as an educator and showed me how effective and enriching this method is.

Interactive graphics and games were also used to provide more knowledge about waste separation and recycling. According to the teacher, the children were very happy when they learned which waste should go into which bin. Virtual tools were also applicable to the topic of renewable energy sources.

Teacher's words

> The children were fascinated by animations and interactive games that provided insights into the wind and solar energy. When we moved on to an experiment where the children made small wind turbines and watched them spin in the virtual wind, their faces were full of joy and amazement. Their enthusiasm and active participation in the tasks brought me great satisfaction. It was moving to see how they understood the connections and were proud of their small, self-made wind turbines.

The teachers had their own reasons that convinced them to participate in the piloting process:

Sustainability - The idea of teaching children about environmental protection and sustainable action in a playful and interactive way convinced me. I was particularly excited by the idea that this project would help children develop an awareness of their environment at an early age and learn how to use resources responsibly.

Interactivity – The possibility of using interactive modules to teach children about complex topics such as environmental awareness and sustainable behaviour was extremely fascinating. The prospect of children being able to learn through independent discovery and trial and error particularly appealed to me.

Sustainability education – The opportunity to teach children about the importance of environmental awareness and sustainable action in an innovative way was extremely appealing. The idea that we could have a long-term positive impact on their attitude towards the environment through this project was decisive for me.

Playful education - The opportunity to introduce children to complex topics through games and interactive tasks seemed to me to be an excellent way of arousing their interest and curiosity while at the same time imparting important knowledge.

Strategy development - The prospect of learning new methods and strategies to make teaching more effective and interactive sounded promising. But I also had concerns about whether these new approaches would really achieve the desired results.

Hear what our teachers had to say!

Video available on: https://youtu.be/pcfBqTHeNkk

After the implementation of the activity, there were changes in the children's behavior. Children became more aware of how they use resource and tried to avoid or reduce the generation of waste.

Their interest in nature and environmental protection has also increased noticeably. For example, they became committed to collecting and separating rubbish.

This is actually the biggest victory of this pilot process - children developing environmental awareness from a young age and by being taught the right way of relating to the environment.

The preschool curriculum is unfortunately often full, leaving little room for new activities which compels teachers to seek various ways to introduce topics. Teachers stated that they would use the prepared materials in the future as well, through the following activities:

- development of basic **entrepreneurial skills** (planning and carrying out small sales campaigns for herbs and vegetables planted by children themselves)
- planting **small vegetable gardens**
- **a mini-market** for home-grown herbs and vegetables
- **environmental campaigns**

Source: BUPNET

A planting action in **Italy**

Institute for the Deaf of Turin pilot-tested the pedagogical sequences with 6 kindergarten teachers in 2 kindergartens in Italy. 49 children participated in activities, including 6 who are DHH, and 3 children with autism.

Kindergarten teachers focused on outdoor activities, field trips and exploring the living world in the kindergarten yard. They organized an action to clean the yard, so that the children could prepare the ground and sow an cultivate plants.

The children were very interested and involved with the goal of placing the plants comfortably in the ground. In this way, children could understand what is needed for a plant to grow smoothly, what the role of soil and water is, but also how negative factors such as air or water pollution can affect the plant.

Apart from being more ecologically aware, the children also became more responsible, because after planting they had to take care of the garden.

Source: Istituto dei Sordi di Torino

Teacher's words

Owing to the GreenGUARDens project, we created an aromatic herb garden with ~~the~~ children. Using the activity focused on soil and plant care, we created this practical activity, which the children loved. It allowed us to extend discussions about the food chain, plant growth, seasonality, and other interesting topics. Most importantly, it's an activity that can be carried on over time. We are still maintaining the garden with the children, and the best part is that this garden is meant to remain within the structure. The older children will also be able to pass on their knowledge to their younger peers, supported by us teachers, thus creating a peer-learning system that will foster continuous green educational activities in the coming years.

What is particularly important is that the children have noticed the connection between the actions they carry out and the results that have arisen. During litter collection activity in the yard, the children were very diligent and interested in cleaning every part of the yard. At the end of the action, one of the children concluded that **"If we do this every day, our garden will always be beautiful!"**.

The children learned mostly through practical activities, combined with a **tactile approach** (feeling, holding, collecting different objects). The children observed the magnolia tree and collected its flowers on the field trip (and later they attached it to the drawings they made). They also collected leaves from the tree in their preschool garden and talked about the uses of leaves, why they fall, and the annual renewal of nature.

This is especially important for children, considering that children today spend less time outside, exploring nature, especially if they live in urban areas.

The children know much more than we often think, and they constantly surprise us!

Through play and activities in nature, teachers helped children ~~to~~ understand the concept of sustainability, entrepreneurship, and environmental protection, and began to develop environmental awareness in children from the earliest years, which is necessary considering the climate changes the world is facing. **And what changes occurred in the kindergarten?**

Children became more **attentive** and **respectful** towards the environment.

They become much more aware of **saving water** and **recycling materials,** and these behaviors are reflected at home, according to parents' feedback**.**

Greater interest and **involvement of parents**

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Hear what our teachers had to say!

Video available on: https://youtu.be/fMAwn7yTYjg

Parents! An equally important factor, because with their help, children can apply all the knowledge they have acquired about environmental protection at home.

Teacher's words

> When children brought home the projects and crafts they made with the leaves, the parents wrote to us and asked why we were doing such environmentally focused projects. This led to not only the children's involvement but also the engagement of the entire social network around us. There was an activation of multiple participants-parents, children who are gaining the first foundations of environmental awareness, and finally, the teachers and the entire structure of our preschool.

All teachers who participated in the piloting stated that they would use those pedagogical sequences in the future as well as that they would recommend them to their colleagues. Of course, some segments will be changed, something will be adapted to new environmental topics launched in the kindergarten, as well as to children's curiosity.

The activities that the teachers have planned for the new school year are:

- creating kindergarten **bio-garden**
- creating a **herbarium**
- new **outdoor activities**
- trip to a **wooded area**

Superheroes in action in **Romania**

Special Technology High School Vasile Pavelcu pilot-tested the pedagogical sequences with 23 kindergarten teachers in 8 kindergartens in Romania. 100 children participated in activities, including 18 who are DHH.

Children were most interested in games on the topic of air pollution, the factors that lead to it, and ways to overcome it. Through the characters of superheroes Mrs. Solar, Windy and Mr. Waters (Team Clean), children could easily and in an interesting way learn about sustainable energy sources and the importance of their use. On the other hand, the theme of air pollution is presented through the character of the villain Mr. Smoke, who has many sources of pollution behind him that empower and strengthen him.

Source: Liceul Tehnologic Special „Vasile Pavelcu”

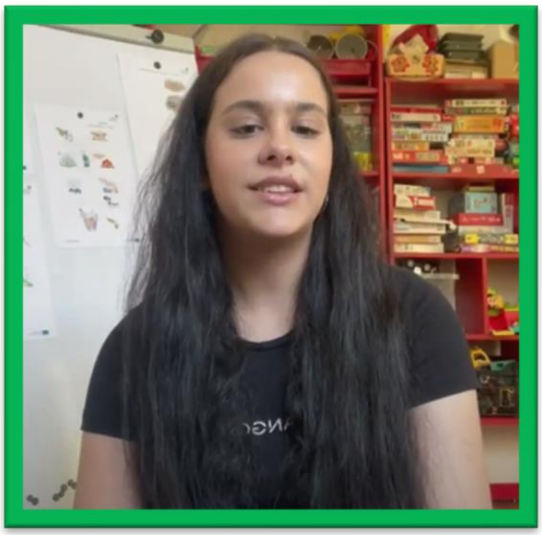
Teacher's words

> I fondly remember the children's reaction to the superheroes appearing in the class and their eagerness to help them shrink Mr. Smoke. Another nice moment was when a little girl realised that the dice she had just thrown meant to empower Mr. Smoke instead of shrinking him. It was hard enough for her to take a little piece of smoke and place it on top of planet Earth. It showed me that children understood the impact of our choices on the environment. The positive impact the activities had on the children made me feel proud to be part of their learning and discovery processes.

Together with the teachers, the children made environmental posters, planted trees and flowers. They also carried out a work action to clean up and recycle garbage in the kindergarten yard. One of the teachers said that the children **"were very involved, interested, active, curious and in a good mood".**

Source: Liceul Tehnologic Special „Vasile Pavelcu"

They worked together, talked and shared happiness when they found a solution and weakened the villain and thus strengthened the planet Earth.



Illustrating a difficult concept like pollution in a concrete character that the children can relate to, made them much more engaged in the activities and understand abstract concepts.

Through interactive games, discussions and conclusions, children were able to see that every action was important and decide whether to act in an environmentally correct way or not.

What changed in kindergarten after the activities?

The children are more careful with their water consumption, help **maintain green spaces** and **recycle.**

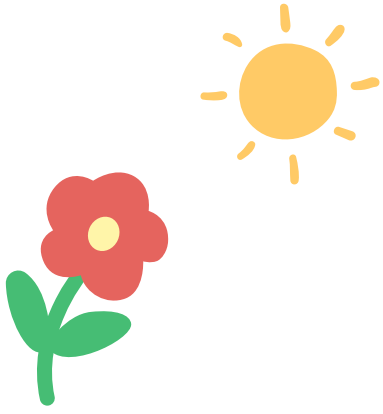
They became much more **aware** of the **impact their actions** have on the environment and more interested in how they can contribute to the protection of nature.

Keeping the classroom **clean**.

The children have become much more careful in the way they use the resources provided: they **turn off** the lights, **recycle** objects that were often thrown away, **repair** broken toys and take better care of them.

Hear what our teachers had to say!

Video available on: https://youtu.be/bQWmf1FGW6w



And the teachers learned something new!

I think the moment that I considered as a wow moment was when I finished the material on ocean pollution. I, as an adult, had not realised until now, nor had I encountered this information until now - that our planet is sustained by the oxygen produced by the waters, oceans and not by forests. It was a piece of information that surprised me and I shared it not only with my children, but also with my peers... And, surprise - it was news to a large part of them.

After learning that car smoke pollutes the air, the next day a few children came to kindergarten on foot, “forcing” their parents to give up the comfort of their cars.

Source: Liceul Tehnologic Special „Vasile Pavelcu”

Piloting in Serbia

Western Balkans Institute (WEBIN) pilot-tested the pedagogical sequences with 13 kindergarten teachers in 5 kindergartens in Serbia. 73 children participated in the activities, including 3 who are DHH.

The children were most interested in the activities within the topic of **deforestation**. They spent most of their time outside, in the kindergarten yard or nearby parks. The children learned about the differences between deciduous and evergreen trees and about the role of trees in the production of oxygen.

Source: Western Balkans Institute

In every forest, animals dwell among the trees. Thus, children had the opportunity to discover the habitats of various creatures and their diets. Through engaging short documentaries, they explored the intricate workings of the food chain. Dandelion Day and Forest Day were celebrated with a delightful visit from professional guests, complemented by a charming mini masquerade ball.

Teacher's words

> We spend a lot of time with children in nature, so we celebrated the World Dandelion Day with children. That was very interesting to them, so everyone came dressed in green and yellow, we went outside, picked dandelions, made cakes out of it and dandelion soup, and we drew dandelions. We had a workshop with the local ecological movement, so the children brought their own buckets, and we cleaned the park and watered the plants.

Together with the local environmental movement, the children planted tree seedlings and other plants and had the opportunity to hear how they should be properly watered and maintained. In some of the kindergartens, trees are symbolically planted on the Forest Day.

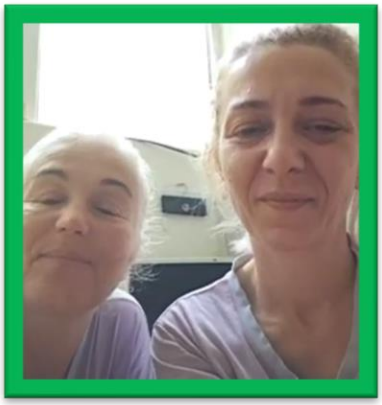
Source: Western Balkans Institute

> The children also passed on their experiences to their parents, indirectly involving them as well. They also knew how to correct their parents´ habits. For instance, May 1 is a holiday during which barbecues are usually made outdoors in Serbia. There was a young boy who urged his parents not to light a fire, expressing concern that the smoke would pollute the air. In a poignant act of protest for being ignored, he refused to eat the meal that followed.

In addition to forests, the children were also interested in the theme of the ocean, i.e. in the case of Serbia, rivers and ponds.

> A biologist Miša's visit to our kindergarten was one of the memorable moments within GreenGUARDens project. We really liked the way he introduced us to the ecosystem of the ponds and swamps, presenting us with many exhibits of the flora and fauna of the ponds, as well as with posters, microscopic material... The children watched everything with interest, and they listened and asked questions. Expressions of curiosity, astonishment, and delight alternated on their faces. The children thanked Miša for coming and for bringing all those exhibits, and one girl said to him: “Miša, I didn't even know you existed in this world”.

Source: Western Balkans Institute



The children were happy, satisfied, they were just waiting for what we were going to do.

Through outdoor activities, children would look for traces of animals, describe everything they touch, see, hear, and discuss it among themselves. **What changed in kindergarten after the activities?**

The children **motivated their parents** and they got involved in decorating the terrace of the kindergarten.

They continued to maintain the **garden** they had planted in the kindergarten.

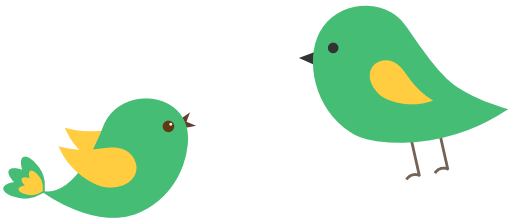
Interest in various **practical experiments** increased.

The children have become quite **independent.**

Children would bring everything they found in magazines on a given topic to kindergarten and **pass it on to their friends**.

Hear what our teachers had to say!

Video available on: https://youtu.be/R2Ch0HOm-8U



And the teachers learned something new!

With children, we learned something that we had not known either. When we were planting the garden, a boy told us that there were 25 types of mint. We didn't know that, and then the children brought mint from their home, so we collected 4 types and the children were overjoyed. After that, they kept asking us, when are we were going to collect all 25?

"A forest with many healthy trees will protect the planet Earth" (the message and child's drawing)

Source: Western Balkans Institute

Conclusion

According to the experiences of teachers and children, the piloting of pedagogical sequences with gamified activities in Serbia, Germany, Italy, Cyprus and Romania was **very successful**.

The topics of **air pollution, ocean pollution and deforestation** are presented to children in ways that are understandable and interesting for them.

Hands-on activities, interactive games, role-playing and memory games, expert visits and a lot of outdoor time proved to be an excellent way of mastering the topics of environmental sustainability and green entrepreneurship with children.

The children enjoyed these activities, they played, they learned and more importantly, they managed to master the topics that were complex and incomprehensible to them.

The GreenGUARDens project contributed to children in 5 partner countries developing **environmental awareness from an early age** and thus understanding the consequences of their actions and learning how to protect the environment.

They learned that each small step in the direction of saving the environment counts and that small adjustments in an individual's daily life, can have a big impact on the planet as a whole.

The GreenGUARDens project consortium once again kindly thanks all the teachers and children who took part in the piloting of these environmental activities.

But we also invite you, the readers, to join us in the new school year in our endeavours to raise children's environmental awareness and contribute to the action to preserve the environment for future generations.

Enjoy reading the **best practices** you can also apply in your kindergarten and work with children.

Best regards from the GreenGUARDens consortium!

Best practices

Section A: Strategic Best Practices

Best Practice 1: Establishing Familiar Routines

One of the key best practices observed during the pilot testing was the establishment of familiar routines for the children. At the beginning of the lesson, teachers adhered to their usual morning activities, such as prayer and discussion about the day's lesson, before introducing new content. This practice is crucial for young children, as it provides a sense of security and stability. Familiar routines help create an environment where children feel comfortable and ready to learn, as they are already accustomed to the sequence of events. By maintaining these routines, teachers can smoothly transition students into new topics, ensuring they remain engaged and receptive. This approach leverages the natural comfort children find in predictability, making it easier for them to absorb and understand new information.

Best Practice 2: Integrating outdoor learning environments

One of the most impactful practices partners defined involved incorporating outdoor activities that allow children to directly interact with nature. This can include nature walks, garden-based learning, or observing local ecosystems. Outdoor experiences help children develop a tangible connection to the environment, enhancing their understanding and appreciation of the natural world. Outdoor learning environments allow preschool children to directly experience nature, helping them develop a connection to the natural world while learning environmental concepts.

Best Practice 3: Networking Among Parents, School, and Children

Establishing a strong network among parents, the school, and children is a best practice that enhances the overall learning experience and creates a supportive community around the child. This practice involves regular communication and collaboration between parents and educators, as well as organizing activities that include both the children and their families. By fostering these connections, the school creates an environment where learning extends beyond the classroom and into the home, reinforcing the child's educational journey.

Networking can take various forms, such as parent-teacher meetings, family workshops, and community events where children can showcase their work and parents can actively participate. For example, organizing a "Family Day" where parents and children engage in joint learning activities, or creating a shared online platform for parents to discuss and support each other, strengthens the bond between the home and the school.

This practice is effective because it builds a collaborative environment where parents feel more involved in their child's education and are better equipped to support their learning at home. It also allows teachers to gain a deeper understanding of each child's background and needs, enabling them to tailor their teaching strategies more effectively. For the children, seeing their parents involved in school activities reinforces the importance of education and creates a sense of continuity between home and school.

Best Practice 4: Implementing Multi-Year Projects for Continuity and Routine

Introducing multi-year projects that span several school years is a best practice that provides continuity and routine, fostering a deep and sustained learning experience for children. These overarching projects are designed to evolve as the children grow, building on previous knowledge and skills while introducing new concepts in a coherent and connected way. By revisiting and expanding upon the same project each year, children can see their progress over time, which enhances their sense of achievement and understanding.

For example, a school might initiate a multi-year project on environmental sustainability. In the first year, children could start by learning about basic concepts like recycling and planting a garden. In the following years, the project could expand to include activities such as studying local wildlife, participating in community clean-up events, or exploring renewable energy sources. Each phase of the project is tailored to the children's developmental stages, ensuring that the content remains relevant and appropriately challenging.

This practice is effective because it creates a stable and familiar framework within the school environment. Children benefit from the predictability and consistency that comes with revisiting a familiar project, which helps to reinforce their learning and build a deeper understanding of the subject matter. Additionally, multi-year projects foster a sense of continuity that supports emotional and social development, as children work on long-term goals both individually and as a group.

Best Practice 5: Exchanging Activities with Other Preschools

Facilitating the exchange of activities between different preschools is a valuable best practice that broadens the educational experience for both children and educators. This practice involves partnering with other preschools to share lesson plans, projects, and cultural activities, either through virtual connections or in-person visits. By collaborating with other schools, children are exposed to new ideas, perspectives, and teaching methods, which can enrich their learning and foster a sense of community beyond their immediate environment.

For example, two preschools might collaborate on a joint art project where children create pieces that are then exchanged and displayed in each other's classrooms. Alternatively, schools could arrange a "pen pal" system where children exchange letters or videos, allowing them to learn about different cultures, traditions, or even languages. These exchanges can also include teacher collaboration, where educators share best practices, resources, and strategies, enhancing the overall quality of education.

This practice is effective because it introduces children to diverse ways of thinking and learning, encouraging open-mindedness and adaptability. It also helps them to develop social skills by interacting with peers from different backgrounds. For educators, exchanging activities with other preschools provides an opportunity to reflect on and improve their teaching practices by incorporating successful strategies from other settings.

Best Practice 6: Engaging in activities over the course of several days

Carrying out activities over the course of several days, returning to something that has been addressed earlier, tends to produce much better results than a one-off activity.

In the first session, the teacher can present a theoretical concept, combined with a hands-on experience - for example, a virtual tour of a garden where the children can learn about the importance of sustainability, observing different plants and animals. In a follow-up activity, the children can return to the same topic – in the same example, they would have an opportunity to virtually "plant" and care for their own little plants. Coming back to what they learned before and seeing the impact of their actions (e.g. the growing of their virtual gardens) reinforces the key points of the topic and acts to reinforce the children's commitment about it.

Best Practice 7: Use of Storytelling to Introduce Complex Topics

Utilising storytelling as an educational tool is another best practice, a story that mirrored the themes of the lesson, such as environmental sustainability. Storytelling is a powerful method to engage young children, as it makes complex topics accessible and relatable. In one example, the story about a fish facing pollution in its home allowed children to empathize with the character and understand the broader concept of environmental impact. By personifying environmental issues through relatable characters and narratives, teachers can simplify abstract ideas and make them more tangible for young learners. This method not only captures the children's interest but also helps in building an emotional connection to the subject matter, which can enhance retention and understanding.

Best Practice 8: Interactive and Hands-On Activities

Incorporating interactive and hands-on activities is another effective best practice observed. Treasure hunts are a prime example of this approach. Even if external circumstances intervene and activities have to be carried out digitally, as occurred during the piloting by one partner, the core idea of interactive learning is preserved. Interactive activities are essential for young children as they provide a multisensory learning experience, which can be more effective than traditional teaching methods. These activities encourage children to explore, ask questions, and actively participate in the learning process. By making learning fun and engaging, teachers can help students develop a deeper understanding of the material and foster a love for learning.

Best Practice 9: Relating Content to Real-Life Experiences

Drawing parallels between the lesson content and the children's real-life experiences is another best practice that emerged from the pilot testing. For instance, teachers related the pollution issues faced by the fish in the story to human experiences with environmental pollution. This approach helps children see the relevance of what they are learning and understand its impact on their own lives. When children can relate new information to their own experiences, it becomes more meaningful and memorable. This method also helps in developing critical thinking skills, as children learn to make connections between different concepts and see the broader implications of their actions. By grounding abstract concepts in real-life contexts, teachers can enhance students' comprehension and application of the material.

Best Practice 10: Designing activities with immediate practical application

A best practice we identified was the ability to immediately put into practical application what has been learned at the kindergarten. The ability to relate the new knowledge to real life experience gives the children the opportunity to develop practical skills and adopt a mindset focused on not wasting resources. An example of this approach is a sequence on waste separation and recycling. Children can sort out different types of waste and put them in the bin of the corresponding colour. This provides an immediate illustration of the concept of waste separation and can be easily transferred to practice both at the kindergarten and at home.

Best Practice 11: Visualising theoretical concept using physical models

Theoretical concepts are often difficult to understand, and using only visual aids is not always enough to bring a point across, as it leaves the learners in a passive position. Children respond much better to a satiation where they are able to get their hands on an object and try to interact with it. For example, when presenting the topic of renewable energy, animations and interactive games that explain wind and solar energy can be combined with a hand-on exercise. The children can made small wind turbines and watch them spin, making their relationship with the topic personal.

Best Practice 12: Fostering sustainable behaviour in kindergarten

Encouraging the children to work with teachers is a great way to keep a kindergarten sustainable. This can include a number of activities:

- Making sure that none of the faucets are dripping and explaining to the children that this is a way of saving water, which has become a very limited resource.
- Saving water and teaching children not to waste it: that they should drink only as much as they need, and if they can't drink it all, to save it for watering the plants.
- Collecting rainwater and using it to water the kindergarten garden.
- Cutting up food scraps, such as eggshells or banana peels, and using them together with the children to fertilize plants inside and outside the kindergarten.
- Explaining to the children how they can save paper - eg. that the other side of the paper can also be used before using a new one.

These are small modifications and improvements that are not too burdensome for either teachers or children, and can best illustrate to children how much each of our actions can affect the planet, but also how each of us can do a little to contribute to the sustainability of the environment, and that those small contributions in the end, when it all adds up, have a big impact.

Best Practice 13: Using art and creative expression

Art allows children to express their understanding of complex topics, such as climate change or biodiversity, in a way that is both personal and imaginative. Art projects, such as drawing, painting, or crafting, provide children with an avenue to explore and internalize complex environmental topics like climate change or biodiversity in a way that resonates with their developmental stage. For instance, they might create collages using recycled materials or paint pictures of endangered animals, fostering creativity while reinforcing environmental themes. Art also allows children to express their personal perspectives on nature and the environment, which enhances emotional connections to the subjects being taught. This method can lead to a deeper understanding, as children visually and emotionally process the importance of taking care of the planet.

Best Practice 14: Incorporating music and movement

Using songs, rhymes, and dance is a great way to teach environmental concepts. Music and movement engage multiple senses, creating a fun and interactive way to introduce environmental concepts to preschoolers. Songs about recycling, dancing to rhythms inspired by rainforests, or creating movements that mimic the wind or water cycles help children internalize these ideas in a joyful and memorable manner. This approach works well because it ties abstract environmental topics to physical activity, reinforcing learning through repetition, rhythm, and bodily engagement. It can also foster a communal learning environment, as children sing, dance, or play musical instruments together, building group cohesion while learning sustainability themes.

Best Practice 15: Incorporating Gamification into Learning

Integrating gamification into the learning process is an effective best practice that motivates and engages young children by turning educational activities into playful experiences. Gamification involves applying game-like elements—such as points, levels, rewards, and challenges—to non-game contexts like classroom lessons. This approach makes learning more interactive and enjoyable, encouraging children to participate actively and consistently.

For example, a classroom might use a point system where children earn stars for completing tasks or demonstrating positive behaviour. These stars can be accumulated and exchanged for small rewards or privileges, such as choosing the next class activity or receiving a certificate. Another approach could involve transforming a lesson into a themed adventure, where children must complete educational challenges to "unlock" new levels or reach a goal, such as helping a character in a story.

Gamification is particularly effective for preschool children because it aligns with their natural inclination towards play. It also provides immediate feedback, which can help to reinforce learning and maintain attention. By making the learning process fun and competitive in a healthy way, gamification encourages children to take ownership of their education and strive for personal improvement.

This practice not only boosts engagement and motivation but also fosters essential skills such as problem-solving, teamwork, and perseverance. By embedding learning objectives within a game-like structure, teachers can make complex or repetitive tasks more appealing, ensuring that children are both entertained and educated.

Best Practice 16: Preparing more challenging activities in advance in order to include all children.

Some of the best activities are also the more challenging ones. This is great for some of the children, but frustrating for the ones that cannot keep up. When interactive elements are included in new topic being presented for the first time, this can cause great excitement with the children, but also can lead to some of them being distracted and having difficulty following the tasks. This would lead to mixed reactions - while some children participate enthusiastically, others would feel frustrated. A more balanced approach that includes both digital and practical elements might work better – for example, if the topic will be introduced gently by creating small, hands-on projects, before carrying out a big common activity.

Best Practice 17: Creating a Herb Book with Preschool Children

Engaging preschool children in the creation of a herb book is an innovative best practice that fosters hands-on learning and connection with nature. This activity involves guiding children through the process of collecting, identifying, and documenting various herbs. By involving them in each step—ranging from exploring the garden to drawing and labelling the herbs—children not only learn about different plants but also develop a sense of ownership and pride in their work.

This practice is highly effective for several reasons. First, it taps into children's natural curiosity and love for exploration. The physical act of gathering herbs and the creative task of drawing and describing them make the learning process both enjoyable and memorable. Second, it integrates multiple learning domains: science (through plant identification), language (through labelling and describing), and art (through drawing). Lastly, the herb book serves as a tangible product of their learning, which they can revisit, share with others, and build upon over time.

Best Practice 18: Using simple experiments to demonstrate air quality

A best practice discovered by partners is engaging children in simple, safe experiments that visually demonstrate the effects of air pollution. Hands-on experiments make the invisible problem of air pollution tangible for young children. A simple activity like placing a white cloth or paper outdoors to collect airborne dust over time visually shows how air can be polluted. Teachers can also introduce homemade filters (using cotton, mesh, or coffee filters) to demonstrate how filtration works, linking it to the way trees clean the air. These kinds of activities give children a sense of discovery and an understanding of how air pollution affects their surroundings. They learn that air quality can be tested and improved, making abstract environmental issues concrete and engaging.

Best Practice 19: Introducing clean air habits through daily routines

Other good practices include Incorporating clean air habits into daily routines, such as practicing indoor air purification by opening windows, avoiding idling vehicles near playgrounds, or discussing the importance of planting trees. Introducing small, everyday actions that improve air quality can have a lasting impact on young children's habits. These simple actions help children understand how they can contribute to cleaner air in their immediate environment, reinforcing the connection between their actions and air quality. Simple routines, such as opening windows to let in fresh air or reminding children to avoid idling cars, can help them understand the importance of clean air in their daily lives. Teachers can also plant indoor plants that naturally purify air or lead discussions on how walking or biking instead of using cars helps reduce air pollution. These activities not only teach children practical steps they can take to improve air quality but also encourage a sense of responsibility toward their environment from a young age.

Best Practice 20: Arranging a visit from an expert, craftsman or local environmental organization

External experts can add credibility and fresh, inspiring perspective to the points discussed in the classroom. Teachers can invite experts such as a biologist, an environmentalist, a plumber or street sweeper.

Each of them will be able to provide children with practical information on the topic, and children will definitely have endless fun listening to them and understanding the role of these professions in preserving the ecological environment.

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