

This project was funded by the Content Pedagogy Research Program of the Hungarian Academy of Sciences.

# A Bird-Friendly Garden at Arany János Primary School in Szeged



# **Project Diary**

# 1. Presentation of the project, objectives

The Arany János Primary School is situated among the buildings of a housing estate. The school is surrounded by roads bearing heavy traffic which means a significant amount of noise and air pollution. Thus the schoolyard, where the children spend their free time and many P.E. lessons, doesn't provide a healthy environment for their growth and development. There is a remarkable quantity of trees in the yard, though it shows a shortage of species-rich plant communities. The quality of the soil is extremely bad.



We would like to change the school garden that now has poor vegetation and is exposed to noise and air pollution into something more natural that makes the life of the children and the teachers of the school better. We would like to transform the vegetation of the yard into a green oasis where birds and humans find a home.

#### Plans for the transformation of the yard



#### Legend

yellow: tall species green: middle sized species red: low perennials, broadleaf evergreens orange: shade-tolerant plants grey: concrete surfaces

1: compost
2: birdbath
3: feeder on ground level
4: loft feeder
5: lairs
6: artificial nests for swallows
7: spice and herb roof garden

The first step in creating the bird-friendly garden is to develop the habitat. By planting a 3 m wide lane of shrubs and herbaceous plants along the 200m long fence, we wish to create a species-rich, multilevel group of plants that provides food, shelter and a nesting place for birds. Eleven classes joined the "Adopt a garden area" movement, in which they planted and looked after their own sections. Thanks to the careful and climate-conscious choice of species, the plants along the fence will only require intense care for 2-3 years. After that they will become almost self-supporting. All the green waste in the garden will go to the compost, which makes up for the nutritionals in the soil.

This multileveled closed vegetation is expected 4-5 years after the planting.



The third and fourth graders joined the project with a herb garden. We placed this spice garden on the roof terrace of the school. As the spice plants are often visited by pollinator insects the garden can attract endangered birds like the barn swallow or the Common House martin.

Increasing the diversity of plants and the bird-protection that suits their lifecycle (putting out lairs and nests, feeding in winter, giving drink in summer) raises the number of species and the number of their representatives living in the surroundings. Beyond the fact that it is a pleasant place the bird-friendly garden provides several opportunities to observe nature, to have Nature and Biology lessons outside and it includes environmental education of opportunity for all age groups.

All phases of the project were done in collaboration with the community. Students of the school took part in great number in the transformation of the garden, they took responsibility in changing their environment. They enriched the project with their own ideas. Parents and other organizations from outside the school joined and helped to implement our plans. The participants were forged into a team by the common aims and experiences. Shaping the school environment sets an example for students, which can also be accomplished at home with their families. The creation of the garden can be a model for the people living around the school. This way the children become efficient developers of their environment and climate-conscious lifestyle.

# Parts of the project

**Herb Garden** 

## A bird-friendly garden









# 2. Participants of the project

# 2.1 Professional leaders



University of Szeged

## 2.2 Professional assistants



# 2.3 Participant classes

# Arany János Primary School in Szeged

2.a



3.a

4.a



5.a





6.a





8.a





# 2.4 Partners from outside the school

## Környezetgazdálkodási Nonprofit Kft. (Environmental Management Office)

 They collect rubbish, recycle waste, and do landscaping in the city of Szeged. They support the bird-friendly garden programme of our school. They planted perennials along and outside the fence of the school in a 100 m long and 3 m wide area.

## TETT Jövőnkért Egyesület (For Our Future Association)

- It is an environmentalist association; their task is to develop environmentally conscious thinking and to organize environmentalist actions.

## **Parent Community**

- This community communicates the aims of the project to all the parents, organizes parent participation, they also have a role in raising funds.

## **Students from the University**

- They gave lectures, and organized activities for our pupils, they helped during observations and researches.
- One of the university students wrote their thesis about the transformation of the school yard into a bird-friendly garden, which gave us useful information during the implementation of the project.

# 3. Venue: Szeged in Hungary, Arany János Primary School

# 4. Period: 2016-2020

As expected the implementation of the project will take more than one year and the upkeep will influence and determine our school programmes for several years. We would like to go on with the development of the habitats which will enrich the vegetation along new sections of the fence.

We consider our previous 4-year-long compost making as prelude, as well as the spring renewal events within which parents and children did landscaping work in the schoolyard.

# 5. The main activities in the project

#### 5.1 Bird-friendly garden

5.1.1 Beginnings

Date: 22<sup>nd</sup> April 2016

Participants: 250 students

On Earth Day, 250 students of Arany János Primary School, the Environmental Management Office and the For Our Future Association started to create the bird-friendly garden together. Our aim was to surround the school with a green belt area that is an eye-catching sight for the children attending the school, for people living in the neighbourhood, as well as providing favourable conditions for children and the birds living in cities.

The students were busy planting shrubs, pulling out weeds, pruning branches, and spreading mulch. This was the first time a lot of children held gardening tools in their hands as they don't have the opportunity to do gardening at home. Parents and teachers were involved in the work, too. Zoltán Pádár explained enthusiastically the usefulness of each plant for a bird-friendly garden. Work was done joyfully in the nice spring sunshine. The workers of the Environmental Management Office and the For Our Future Association directed the children with love and in high spirit.

During work there were several opportunities to observe nature. Children watched creatures living in the soil and insects crawling on the ground with interest. It was explained to them why worms are important in the life of the soil. The most courageous pupils held them in their hands and examined their bodies. More and more students followed their example overcoming their own fears. The smaller children learnt about the useful plants and the weeds and why they should be removed from the soil. Children could listen to a lecture about compost making from head gardener, Zoltán Sirkó. Students proudly told him that the school tries producing compost with success. We produce our own planting soil, which will be enough for the new plants.

People from the neighbourhood watched our work with increasing interest and they were happy with the environment becoming more beautiful.



## Feelings and Experiences



Participating in the project, we have learnt how to use some garden tools. Those children who do not have the opportunity to try gardening at home can do so here. We have become familiar with planting and we have also realized that we will not be keen on weeding even when we grow up. When we were ready, we moved on to help others. I will never forget the feeling when I saw all those beautiful flowers.

By Alíz form class 6.a

#### 5.1.2 Adopt a garden

#### Date: May 2016

Participating classes: 2.a, 3.a, 4.a, 5.a, 5.b, 6.a, 6.b, 6.c, 7.d, 8.a, 8.b

After the great success of the Earth Day action, we gave out a call that was suggested by class 6a: let classes own a 10-15 m long and 3 m wide area of the garden. They would fill it with plants and look after them. Eleven classes answered our call. They continued planting on the south-western part of the school. While choosing plants to plant, we endeavoured to have multilevel vegetation containing varied species after 4-5 years. An important criteria, was to plant shrubs and perennials that bloom in different times of the year so that their fruits not only would decorate the garden but provide food for birds. The extremely hard ground was loosened by teachers and optimized with compost.

The newly planted area needs continuous watering and weeding. Not all the classes took an equally intense part in the work but we could find children in every class who considered it a "labour of love" and were enthusiastic to participate.

#### The plants that can be seen in the garden now



viburnum opulus





juniper



lavender



hawthorn



chokeberry

#### 5.1.3 Placing the birdbath

#### Date: July 2016.

#### Participating class: 5a

In a bird-friendly garden water has to be provided for the birds. Class 5.a applied for the task.

Birds use the birdbath to drink and bathe. The children placed it at a quiet part of the school-yard which is safe from the burning of sun in the summer. The students take care of refilling the birdbath with water.



## Feelings and Experiences



I believe if we help them, they will return the favour and reward us with their beautiful songs in spring. When I grow up, I want to deal with birds a lot more than now. By Tímea form class 6.b

#### 5.1.4 Birdbanding at Fehér-tó

Date: July 2015.

Participating class: 6.a

The lake called Fehér-tó near Szeged is the part of Kiskunság National Park. Hungary's biggest coloured lake can be found here. Its avifauna is rich with 280 species that live there and the area is an important station for the purposes of resting and meeting for the migrating birds.

In July, we visited the place with the students of year 6 and their families and we watched the banding of birds. By banding the birds we can examine their migration, their place of nesting and the size of the population. Ornithologists share this data with each other in an international database.

## Through the eyes of the children

The fowlers set up a thin black net around the lake in order to catch the birds at dawn and the birds get wound up in it. We went out together to collect the captured birds which were put in small textile bags and they were measured at the house for their weight and their and the length of their beaks and wings. By



blowing their feathers on their stomachs we checked how yellow their skins were. The yellower they are the more fat they have stored for the winter. This can determine whether the bird can survive or not.

We were lucky that day because many different species were caught in the net. There were field warblers, reed warblers, pipits, tree sparrows,



nine-killers and kingfishers too, which are considered rare for birdbanders.

The nine-killer's beak is very strong and pointy so it can catch all sorts of bugs and

worms with it. Sometimes it catches even small lizards or rodents. It also

bit my hand. It usually cannot eat all the insects it catches so it sticks its remaining prey on the spikes of bushes and it eats them later.

The most beautiful of all the banded birds was the kingfisher. It also has a long pointy beak because it catches small fish by diving into the water with its head first. The bird, which got scared after getting captured, acted in a very funny way. It twisted its head around in



a threatening way and it shook its head hard trying to scare us away, seeing us as its enemies. Erna the fowler girl showed us that it we lay the



bird on its back than it observes its surrounding peacefully and it doesn't fly away. We even took a picture of the resting bird, which was not bigger than a mobile phone.

The fowler records all the data of the animal and a small metal band is put on its leg. After the measuring and the banding I let the scared little



reed warbler away. After the measuring Erna let us hold some of the birds, but before that she showed us how to hold such a small and fragile animal. We could feel the breathing of the reed warbler in our hands and after that we let them go towards the reeds. Nothing bad happened to them except for getting a little frightened.

By Dani, a boy from 6.a



# Feelings and Experiences



I learned from this that we sometimes have to stop and have to take a closer look at our immediate environment. We will see many amazing things! This program was perfect in order to examine and experience in real life what other children observe from windows. By Flóra from 6.a

#### 5.1.5 Birds around us

#### Date: October

#### Participant classes: 6.a, 6.b

Form: science class, groupwork activity (4 students/group)

Task: describing birds living at the school yard and nearby

Aspects

- identification of different species
- their habitat
- nurturing their offsprings
- their food in winter

## **Presentation:**

- Students in groups made their presentations about the birds.
- They displayed posters and descriptions of the birds on noticeboards for the students at school.



Parus major



Turdus merula



Dendrocopos major



Corvus monedula



Chloris cheoris



Phoenicurus ochruros



Streptopelia decaocto



Fringilla coelebs



Tito alba

## Through the eyes of the children

We can see different kinds of birds in town. We can also observe a lot of species in our school garden. Nevertheless it is also true that when we play in the school yard, these birds, which got used to living near people, hide away from the noise.

However, if we listen carefully, we can spot a lot of different species such as: greenfinches, blackbirds, house-sparrows, field sparrows, starlings, great titmice, blue titmice and jackdaws etc. At the backyard, there is a nest of a Balkan turtle-dove hiding high among the branches of an elm tree.

The jackdaws like walking in our part of the yard. These birds are so tame that if we sneak about quietly and carefully we can even approach them in one metre distance. They are special birds and they can even imitate



sounds. They can learn one or two words from a human language and they can also imitate the sound of the school bell. It would be great if our jackdaws were able to 'ring the bell', so **our classes would finish earlier**.

By Balázs, a boy from 6.a





I think that every person should learn to protect nature and take care of their environment since it is a beautiful world and it provides us with life too. By Dani from 6.a

# 5.1.6 A lecture on birds and watching the migration of common cranes at lake Fehér-tó.

Participant classes: 6.a, 6.b, 6c

Date: November 2016

## The topic of the lecture: The World of Birds

The lecture was kept by Dénes who is a fowler and a university student at the biology faculty. He told us a lot of interesting things about birds:

• How could they adapt to a flying way of life?

- Why is the temperature of their body so high?
- How is it possible that their lungs can take in oxygen when they exhale?
- How do birds make use of the ascending currents of air during their flights?
- Why is this old saying wrong? He eats as little as a bird.
- How are birds tagged and what can we learn from the data provided by the transmitters?

By listening to the lecture we became familiar with the characteristics of common cranes, their way of life and migration routes. On the basis of the given information every participant could fill in his or her own Common Crane Passport. Then we took a trip to Fehér-tó lake together and it was fascinating to watch the cranes' migration from there.



#### (name and class of the student)

## Through the eyes of the children

I was really curious about how the migration routes of the birds are revealed. Our guide told us that some of the birds are saddled with small satellite transmitters which make it possible to track their whole migration routes online. From the transmitter-generated signals even the flight speed of the cranes can be calculated.

For a bird equipped like that, it took 25 hours to get from Lithuania to Hortobágy in Hungary, flying 889 km during that time. It means almost 18 hours of flying 50 km/h. Even at its top speed, which is 100 km/h, it means 9 hours of flying without rest, and it needs a lot of energy! In the winter I read an interesting book about a crane family, its title is *The Last Crane*<sup>1</sup> by Rózsa Ignácz. From this book I learned that cranes are very clever and loyal to their mate as well as to their human hosts.



By Nándor, a boy from 6.a

# Feelings and experiences



I have learnt a lot of new and interesting facts about migratory birds. The most interesting for me was to find out that a migratory bird travels several thousands of kilometres from Europe to Africa. How astounding! By Márton form class 6.a

<sup>&</sup>lt;sup>1</sup> Our translation, original title: Az utolsó daru.

## Through the eyes of the children

An extraordinary spectacle of Szeged is the view of flocks of migrating cranes winging their way across the sky over the city in autumn and in spring. These very shy birds rest in the Fehér-tó Area for a few weeks before they fly north in spring and south in autumn. In the morning they leave the lake for their feeding areas, and in the evening around sunset they return to spend the night standing in shallow water, safe from predators. In the beginning of November one can see even 30.000 birds standing in the lake at night. Recently a few thousands of them have even chosen to spend the whole winter here.



We had decided to watch the birds someday after school. We went out and saw the birds flying in  $\vee$  formation and we could hear their loud calls. They were flying in huge flocks, sometimes only 10–20 of them,

sometimes hundreds of them in the typical  $\lor$  shape. Our guide told us that keeping this formation helps in reducing the air resistance, thus reducing the amount of energy the birds at the back needs to fly. But the leading bird has to work hard. If it gets tired, it changes place with another member of the flock. I think we have a lot to learn from cranes!

By Boldizsár, a boy from 6.a





We could watch them through binoculars and nobody was able to take their eyes off the sky. All we could hear in the silence was the birds and subtle noises of nature. It felt a bit strange but at the same time, very soothing. So far, I have learnt about the birds, the fauna and flora of the plain from books only, but this excursion has helped me to visualize what I learnt before. By Levente form class 6.b

## 5.1.7 Bird Protection in Winter

#### 5.1.7.1 Things to know

Participant classes: 3.a 5.a, 6.a, 6.b, 6.c

Date: the1st and 2nd week of December 2016

In science lessons, the six grade students put the most important facts of winter bird protection together and made an agenda.

## Team tasks:

- 1. What to feed the birds?
- 2. What not to feed the birds?
- 3. When to start and when to finish feeding the birds?
- 4. Why is it important to feed continually?
- 5. Introduce the different types of feeders

Source of information: www.mme.hu/teli\_madaretetes

## 5.1.7.2 Things to do

If we want more and more birds to visit our yard we have to take care of their food in winter. Some of the girls made decorative bird feeders of recycled waste with decoupage technique. Used materials: juice and milk boxes, PET bottles, decoupage glue, paper napkin, acrylic paint.





I was very surprised how extremely useful waste plastic can be. I love animals, especially birds. I am amazed by the variety of their feathers. When I heard that we can make them safe nests and feeding places I volunteered immediately. I was surprised and happy to witness what amazing things we can create for them out of waste materials. It was a real team building program. By Tamás from 6.b

The others made loaves for birds. It was novelty for the children to use gelatine and coconut oil as adhesives. Girdles and strings were also made of seeds and apples for the birds, most of these girdles and strings were places in the schoolyard while the rest were taken home by the children so that they could be food for starving birds around their homes.





We made some birdseed cakes then we hung them in the trees and bushes. My favourite singing-bird is the nightingale. Unfortunately, they cannot eat from the cakes because nightingales are migratory birds. By Lilla form class 3.a



I love watching the birds when they are eating. In my opinion, the birds will be glad to peck at the food that we have made. By József form class 3.a



My favourite birds are tits. I would like them, too, to taste the food that we have made. I was having a wonderful time. By Panna form class 3.a

Meanwhile, the older students made wooden feeders with the help of teachers and parents. Using the different tools, drilling and carving was a great experience for the children. They were very proud of their work. They also volunteered to supply the feeders with food and water.





Due to the program I have learned that we should not let the birds down. The best experience for me was when we put the feeders out in the garden and I could already be sure that it was a lot of help for the animals. If there is another program like this in the future then I will be happy to participate. By Ádám from 6.a

## 5.1.8 Preparations for the Spring: Making Wooden Bird Houses

## Participants: boys of 6.a

#### Date: 3rd week of January 2017

The nesting of birds in the bird-friendly garden can be helped with the placement of birdhouses. The 6th grade students made 5 Type 'B' bird houses with the help of parents,

teachers and the repairmen of the school. These birdhouses are ideal nesting places for great tits, sparrows, sittas, wrynecks.

Drilling, carving, sawing and the use of the different tools were taught to the students by the parents and the repairmen of the school. Everybody enjoyed the collective work.

We hope a lot of birds will choose the birdhouses placed out in the school yard for their homes so that the number of the birds living in our yard will increase.



# Feelings and experiences



These nests are useful because this way many birds will gather around the school and with their singing they will make school friendlier and our days will be more beautiful too.

Bu Balázs from 6.a

## 5.2 Herb garden on the rooftop

We decided to start an herb garden on the school's rooftop. While working on it, classes get a chance to learn about how to work with compost, the basics of gardening, taking care of the plants, and it would also expand their knowledge about species of herbs. By experimenting with the herbs in the kitchen, kids could try new flavours, and since herbs are gladly visited by insects, their increasing presence would directly lead to the increase of the number of birds around as well.

According to our plans, we installed 1x1-metre raised beds on the top of the ventilation system on the rooftop. In May 2016 we planted perennial lavender, rosemary, thyme, and savory. The students of the classes 3.a and 4.a were enthusiastic to take part in the work, and they were excited to see what happens next.

## 5.2.1 Learning about the herbs

Date: October 2016

Participating classes: 3.a, 4.a

To assess prior knowledge, we initiated conversations on the topic:

- What kinds of herbs do you know?
- Why do we grow herbs?
- What are they used for?
- Why is it healthy to use herbs in our food?

Teamwork: to gather information on the growing requirements of the particular herbs.

		light needs	water needs	nutrient needs	soil characteristics
Team 1	oregano				
Team 2	thyme				
Team 3	lemon grass				
Team 4	peppermint				
Team 5	basil				
Team 6	chives				

Each team presented their findings on posters.



#### 5.2.2 Plant propagation

Date: November 2016, January 2017

Participating classes: 3.a, 4.a

We took our raised beds and a little garden soil mingled with our compost, then we started the work.

Being beginners, we asked the kids not to disappoint if their plants do not grow as expected. The students were really dedicated to the project, eagerly planted the seeds, and then took care of the little seedlings. However, growing seeds is risky, the little plants are very delicate, so, unfortunately, only a few seeds became seedlings.

Nevertheless, children didn't give up. They came to like growing plants, so they tried it again. They came to ask questions about what to change in order to succeed. For the second time we chose basil, lovage, oregano, savoury, lemon grass, and chives. We grew thyme and peppermint from cuttings, and we helped the process with adding plant hormones. Now kids are looking forward to the outcome, and they are full of hope.

To make things sure, we also planted radish and lettuce into the beds on the rooftop. Kids are keen on watching and nursing the plants. They are also making plans on and having discussions about how they are going to divide the grown vegetables, to whom they are going to give them away as presents, and with what kinds of snacks they will like them the best.

The project is also a great opportunity for the students to deepen and increase the knowledge they have collected in science lessons. They can also study the plants growing day by day, study their built, and gain experiences concerning their environmental needs and the steps of gardening. Some of the kids have tried gardening for the first time, and discovered the joy in it within the frame of the project.



## Through the eyes of the children

We already started producing herbs in January. We were very happy about the task. Everyone started working on it with great excitement. We couldn't forget about watering the plants for even a day because the freshly planted plants could have died. We always watched how they grew from day to day. There was an occasion when a plant on the planting board dried out, but we immediately planted another one in its place. I am waiting for them to grow big. I hope that we will plant spice plants next time too.

By Luca, a girl from 4.a

# Feelings and Experiences



I liked the idea of gardening. I persuaded my parents to create a herb garden on our balcony. Even dad takes a look at it every day and checks how our plants grow. By Dorina form 4.a

## 5.3 Composting

Composting is a several-year-old tradition in our school, and it is connected to the garden project. First we made only one composting bin and although there was some scepticism about it, we were able to make this environmental activity a tradition in our school.

The members of the composting team are also from the same class and they have been doing the composting work for four years. At first the students learn the importance, the procedure and the tasks of composting. Then they learn how to layer the material in the composting bin, and what they can and cannot put in the bin.



#### 5.3.1 How Compost is Made

#### Participants: 7.d

Date: from October to September

#### Sessions

#### **October and November**

Composting starts in autumn when leaves fall from the trees. The children collect the leaves for weeks and then they layer them in the following way.

#### from December to August

The content of the composting bins is turned over and examined every month. In summer watering assures that the compost stays wet in the dry weather. This ensures that the creatures living in the compost could fulfil the necessary transformations.



#### September

The compost is ready to be used after one year. In September it is riddled and put into sacks. Compost is used to improve the quality of the soil. It is used when the plants are settled out in the garden and the herb garden, and when the plants inside the school building are replanted.

## Through the eyes of the children

We inherited this environmental activity from the 8th grade students when we were in the 5th grade. I think it gives you a good feeling that you can help your school with something. When we started our first composting we were looking at Mr. Ilosvay and the 8th graders scared when they showed us what to do and why and which tools we should use. At first we dug and turned over the compost made by the elder students happily but later we realized that it is hard work. Our muscles ached more and more because of the scooping. As we worked more and more younger students came to us to see what we were doing. Once they also joined us and collected leaves. Soon it will be our turn to choose the class which will follow us with this useful and nice school tradition. During these years we have learnt the procedure of composting, we have been witnesses of this amazing transformation during which dead plants turn into a complex system which is full of life. Loads of microorganisms, worms and larvae of insects turned the compost a living thing.

By Bence from 7.d





It was fantastic that we were out in the open air and moved our muscles. In the beginning the other classes did not understand what we liked about this, but today they recognize our work. They can also feel the importance of environmental protection but they help in other ways, for example, they make bird houses and feeders with the help of the parents and they put them out in the school yard. By Olivér from 7.d

Students, teachers and parents took a huge amount of photos during the project. Students who are interested in ICT put together a slideshow of the best photos we have:

https://drive.google.com/file/d/0B5tljs7AI9kxV1RidHBfQ1c4NzQ/view?usp=sharing

## 5.4 As teachers see it now

# Feelings and experiences



I believe it is very important that children should be surrounded by natural environment that they themselves help to look after. Activities that are implemented at school can be a model for the families. Our students planted a herb garden on the terraces, fed the birds in winter, so they started to protect the environment.



As for the composting: I have been enriched by a lot of experiences during the activities. The children's openness to new things was inspirational as well as creating a composting site and a herb garden and the enthusiasm with which they were doing their tasks. As they said they were having fun while they were learning by playing. It was a great experience to discover a lot of new things, changes and transformations and to look at their faces when the result was born. They also needed some encouragement when they spent more time on a task than they had expected in order to gain success. It was definitely worth starting it and there is no doubt that we will carry on doing it.



It feels really good to create a tiny island in our artificial world. It becomes a great experience for a lifetime if we do our creative work with pleasure. Together, as one, with enthusiasm, in harmony with nature and in the service of nature.



The students and teachers could experience the joy of learning during playing and working and the experience of creation in a familiar atmosphere and kind mood. The children did not only acquire the knowledge of the given topic but we also rose a necessity in them to focus their attention more on their direct environment.



I am glad that my class and I could take part in the creation of the garden as well as the protection of the birds in winter during this programme. Useful collaborative work has been an exciting new experience for the 9-10-year-old children. We decided to continue next year.



Children were really enthusiastic about collecting information about herbs. Planting the herb garden was a joyful experience for them. I was happy to see how smoothly they can cooperate and how much they get to know about herbs. I love to observe them in situations when during carrying out a task their personalities and diligence can be truly seen. Team activities have improved their collaborative skills – they have learnt a lot together and from each other.





