# Presentation of outdoor activities (job shadowing)

## introducing different approaches

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# Adjustment of the outdoor space in the school yard

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# Outdoor classroom (in progress)

The outdoor classroom for our STEM lessons. The classroom is located in the school yard. The classroom has a wood rooftop and the tables and chairs are placed in a way that students can work in small groups in order to stimulate cooperation, collaboration and active learning. This outdoor classroom is directly financed by our Erasmus+ KA229 project.

# Second outdoor classroom

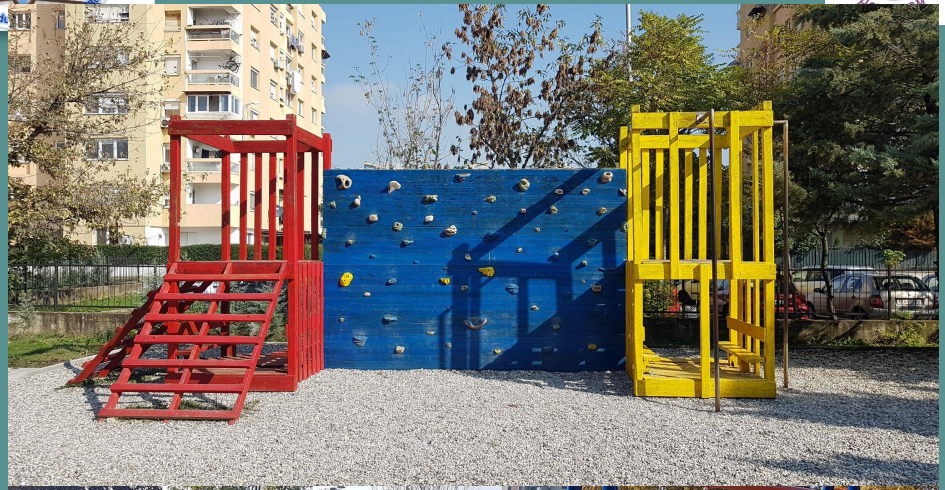
This outdoor classroom was built last year as a direct need due to the Covid-19 pandemic and the need some of the lessons to be held outdoors. This classroom was built by the school's own finances. This classroom is a bit different from the first one. It's aimed to be able to accommodate a larger group of students that can have lessons here, different workshops or get different instructions from the teacher(s) while they do different activities outside.

# Indoor science laboratory

This a band new indoor science laboratory, which was equiquipt directly from our Ministry of education. The laboratory has new school tables and laboratory chairs, sinks for experiments and different cupboards for experiment materials.

# Playground

The playground was built in two parts in the previous years (one part as a donation from parents and the second part by a local NGO that supports SEN children). There is a climbing wall, swings and different equipment for exercising. In this playground students can spend their school breaks and also their leisure time after/before lessons doing different sport activities, develop their physical abilities, handout and have fun.



## Visiting science museum / educational facility / institution / trip in nature

# Educational center at the powerplant HEC “Matka”

On 05.10.2021 the members of the STEM hobby group (Fun science) together with four teachers from the hobby group visited the educational center and museum at HEC “Matka”

The museum is located in the old hydro powerplant Matka which was built in the period 1935-1938.

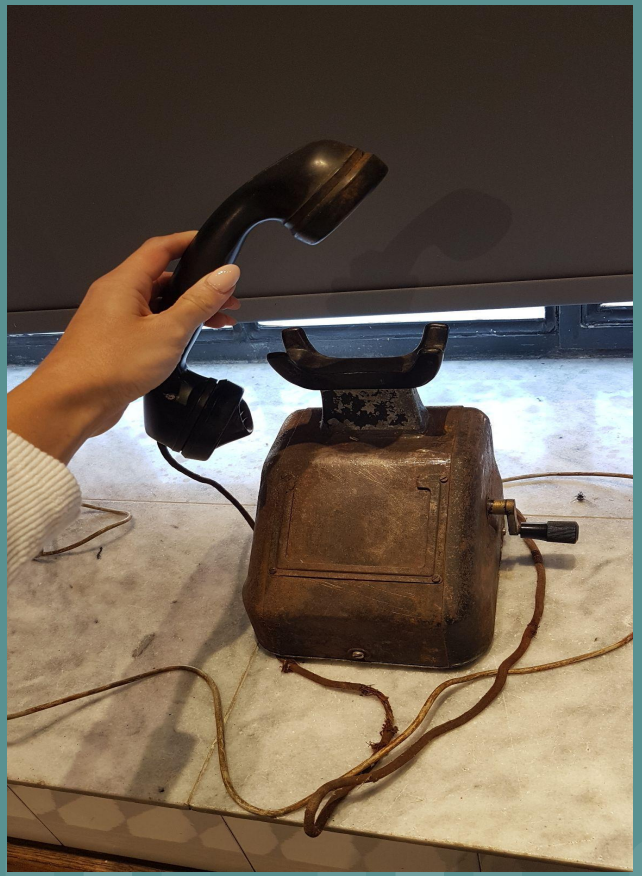
In 2016 the building was renovated and madeover as a showroom and an educational center, which was open to the public in 2017.

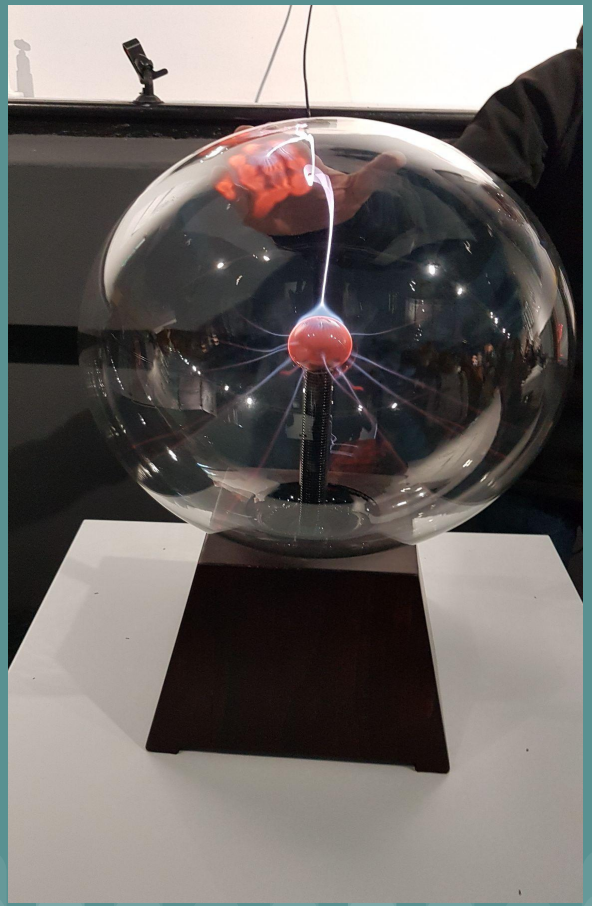
At the entrance of the powerplant, along the outside wall, a brief description about the discovery and development of the electrical energy in the world and in our country is displayed.
The students were accompanied by a guide, who inform them in a fun and educational way about all the exhibits in the center.

In the center the visitors can see original old items, archive materials, photographs, films and real components of the electro energy system.
Here we have a generator for production of electricity and a big pipe for distribution of water into a turbine.


Here we have the original look of a worker in the hydro plant from that time.

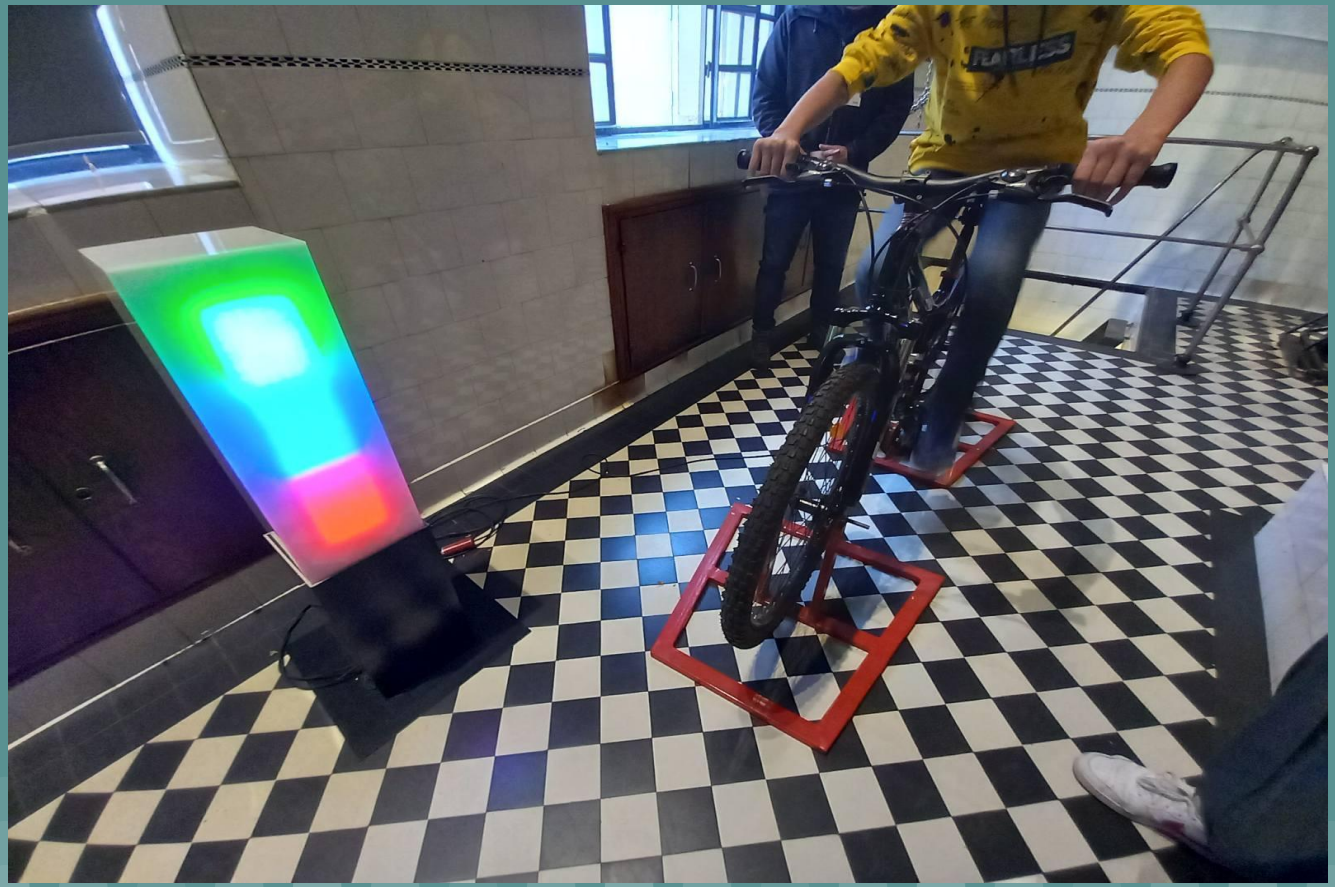
And an old phone with a dealing handle.





In these photos we can see some of the unique educational exhibits made specially for the educational center and aimed for interactive teaching.

A plasma ball and electro distribution system (the path of the electric energy from its creation all the way to its final destination.



Here we have a bicycle that the students tried to ride in order for them to create electric energy.

After the visit of educational center, the students wrote essays from their experience and the best three were chosen to be translated into English and shared in our eTwinning project.

# STEM LESSONS in nature

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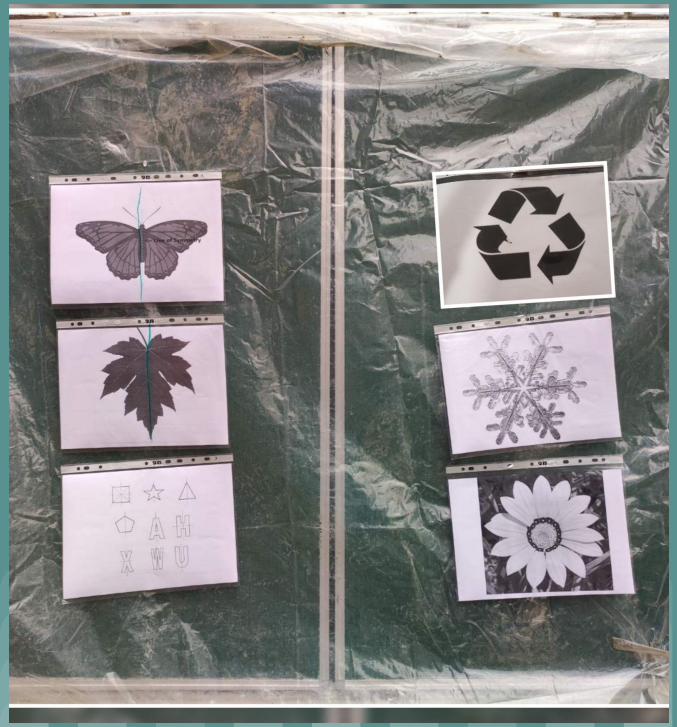
# Symmetry in nature

- **Subject** - Mathematics
- **Materials needed** - worksheets with table (to fill in information), A4 white sheets of paper and ink, smartphone for taking pictures, objects, plants, building in the local surroundings
- **Surroundings** - in the school yard

- **Aims**:
  - gaining knowledge about axial symmetry and rotational symmetry
  - identifying axial symmetrical objects in nature
  - identifying rotational symmetry in nature
  - determining the number of axes of symmetry and the order of rotational symmetry in forms/objects

The teacher explained to the students the terms: axial symmetry and rotational symmetry and together with the teacher they made axial symmetrical forms using A4 white sheets of paper and ink.



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The students got a task to walk around the school yard , look at / examine different objects. After that, they had to choose some objects, take pictures and fill in the worksheet with the table with the following information: number of axes of symmetry and the order of rotational symmetry

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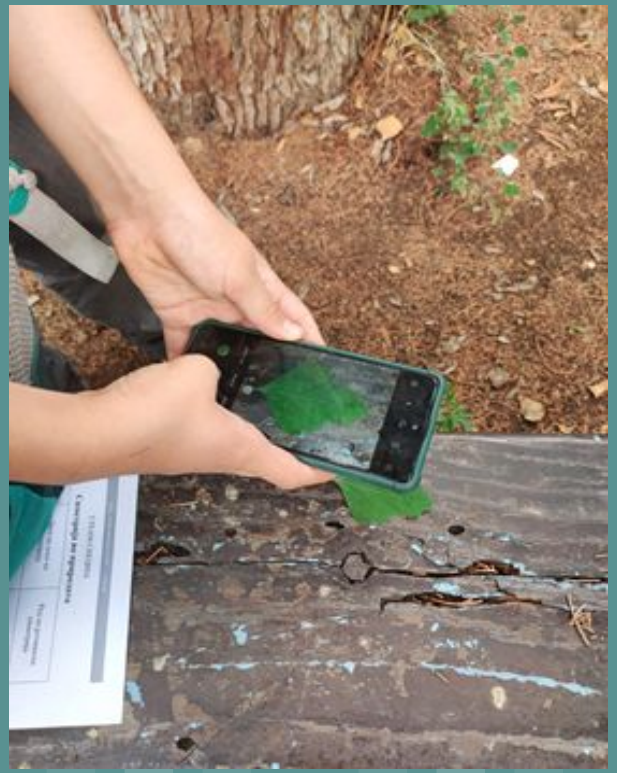
СТЕАМ-СЕКЦИЈА

**Симетрија во природата**

| Предмет | Број на оски на симетрија | Ред на ротациска симетрија |
|---|---|---|
| | | |
| | | |
| | | |



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## Симетрија во природата

| Предмет | Број на оски на симетрија | Ред на ротациска симетрија |
|---|---|---|
| **Лист 1**  | **0** | **1** |
| **стол**  | **1** | **1** |
| **Форма на Школскиот Ѕид**  | **2** | **2** |





СТЕАМ-СЕКЦИЈА

## Симетрија во природата

| Предмет | Број на оски на симетрија | Ред на ротациска симетрија |
|---|---|---|
|  | 3 | 1 |
|  | 3 | 3 |
|  | 1 | 1 |
|  | 1 | 1 |
|  | 1 | 1 |
|  | 1 | 1 |
|  | 1 | 1 |

# Long jump and statistics

**Subject** - Mathematic and PE (interdisciplinary activities)
**Materials needed** - mattresses, measuring tape, sportswear, worksheets with tables (for collecting information), computer (excel - for calculations and creating graphs)
**Surroundings** - school sports hall

**Aims**:

- gaining knowledge about long jump
- physical activity by using long jump
- gaining knowledge about working with data and statistics
- using Excel for calculation of average and drawing graphs

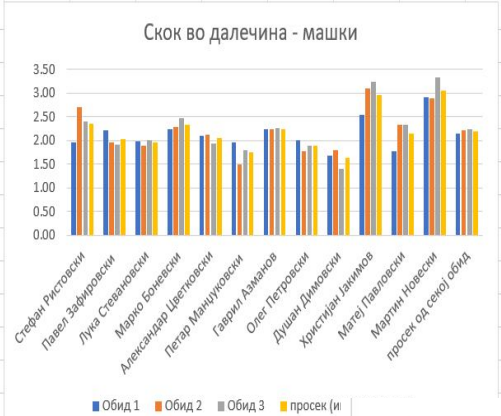
The PE teacher demonstrates how to perform the long jump correctly and the students have three tries to make a long jump.

The students enter the collected data in the Excel tables, separately for the girls and boys. They calculate the average of each try and draw graphs to present the results from the jumps, as well as a comparative graph in order to see whose results were better (they boys' or the girls' results).

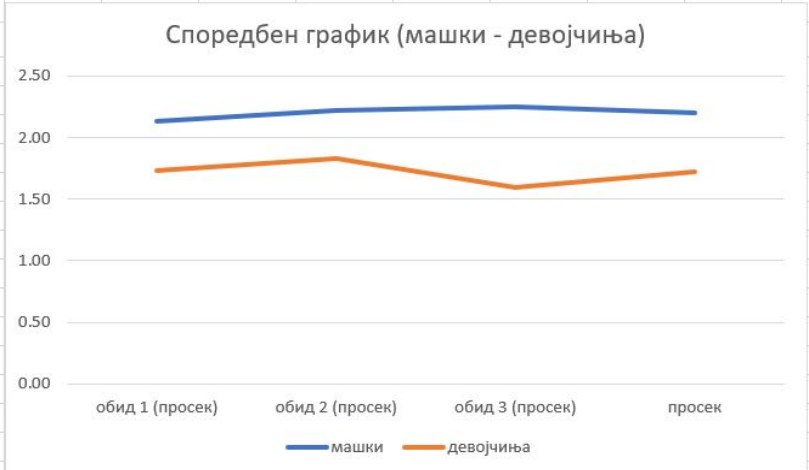
## СТЕАМ секција
## Скок во далечина и статистики

| машки | Име и презиме | Обид 1 | Обид 2 | Обид 3 | просек (индивидуален) | најдобар скок |
|---|---|---|---|---|---|---|
| 1 | Стефан Ристовски | 1.95 | 2.71 | 2.40 | 2.35 | 2,71 |
| 2 | Павел Зафировски | 2.21 | 1.95 | 1.91 | 2.02 | 2.21 |
| 3 | Лука Стевановски | 1.98 | 1.88 | 2.00 | 1.95 | 1.98 |
| 4 | Марко Боневски | 2.25 | 2.29 | 2.46 | 2.33 | 2.46 |
| 5 | Александар Цветковски | 2.10 | 2.12 | 1.94 | 2.05 | 2.12 |
| 6 | Петар Манџуковски | 1.97 | 1.50 | 1.80 | 1.76 | 1.97 |
| 7 | Гаврил Азманов | 2.25 | 2.23 | 2.26 | 2.25 | 2.26 |
| 8 | Олег Петровски | 2.00 | 1.78 | 1.90 | 1.89 | 2.00 |
| 9 | Душан Димовски | 1.68 | 1.79 | 1.40 | 1.62 | 1.79 |
| 10 | Христијан Јакимов | 2.54 | 3.10 | 3.25 | 2.96 | 3.25 |
| 11 | Матеј Павловски | 1.78 | 2.33 | 2.33 | 2.15 | 2.33 |
| 12 | Мартин Новески | 2.92 | 2.90 | 3.33 | 3.05 | 3.33 |
| | просек од секој обид | 2.14 | 2.22 | 2.25 | 2.20 | |

График - машки




Споредбен график (машки-девојчиња)



# Measuring distance and time to calculate speed

**Subject** - Physics, Mathematics and PE (interdisciplinary activities)
**Materials needed** - measuring tape, stopwatch, sportswear, worksheets with tables to enter the distance and time and perform calculations
**Surroundings** - school sports hall

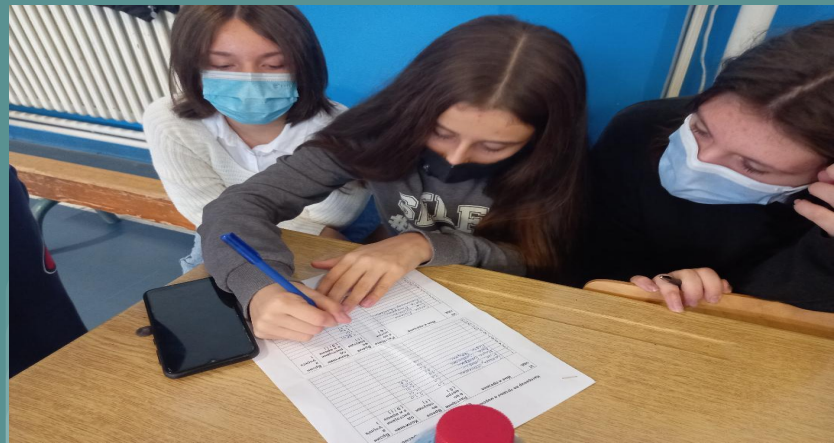
**Aims**:

- to be able to measure distance with a measuring tape and time with a stopwatch
- to use tables to present the results using the formula for calculating speed

The PE teacher demonstrates and gives instructions for warming up and how to perform the start of the race correctly.

The students do the activities (running the race), they measure the distance with the measuring tape and the time with the stopwatch.

They put the collected data into the tables and calculate the speed.



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| | | | | | |
|---|---|---|---|---|---|
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |

| VII одд. | Име и презиме | Растојание во метри ( S ) | Време во секунди ( t ) | Количник од растојание и време ( S / t ) | Брзина V=(m/s) |
|---|---|---|---|---|---|
| 1 | Гаврил Азманов | 20 | 4.41 | 4.5 | 4.5m/s |
| 2 | Олег Петровски | 20 | 4.50 | 4.4 | 4.4m/s |
| 4 | Александар Цветковски | 20 | 4.43 | 4.5 | 4.5m/s |
| 5 | Кристина Јакимова | 20 | 5.03 | 4 | 4m/s |
| 6 | Ина Величкоска | 20 | 4.59 | 4.4 | 4.4m/s |
| 7 | Матеа Николовска | 20 | 4.28 | 4.7 | 4.7m/s |
| 8 | Натали Ценевска | 20 | 4.37 | 4.6 | 4.6m/s |
| 9 | Исидора Павловска | 20 | 4.31 | 4.6 | 4.6m/s |
| 10 | Марија Зечевиќ | 20 | 5.03 | 4 | 4m/s |
| 11 | Ена Реџепова | 20 | 4.84 | 4.1 | 4.1m/s |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |

# ACTIVE LESSON BREAKS

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# Sports week

**Materials needed** - football, basketball, mattresses, hoops, gymnastics beams, cones, books

**Surroundings** - sports hall, school yard, school hall

**Aims**:

- mastering the technique of playing football
- mastering the technique of playing basketball
- recreation
- teamwork
- socializing, communicating, sports and competitor's spirit development
- active lesson breaks

Tournament in football (futsal) between different schools from the Municipality during the extracurricular activities after classes

Sports relay games for developing students' speed, coordination and agility.

On a given mark from the teacher, the students have to pass through all the obstacles in the relay range in the fastest time possible. This activity was done during the main lesson break.

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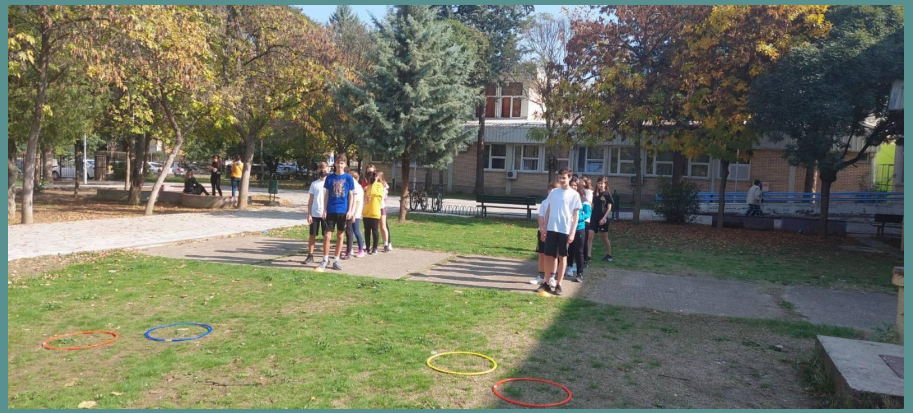

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This activity involved active lesson breaks without smartphones and it's aims were to reduce stress, to build positive relationships between students, to improve the communication and cooperation skills as well as to reduce the level of bullying and conflicts.

Our challenge was for the students to develop better habits during lessons breaks and leisure time and to spend more time outside.

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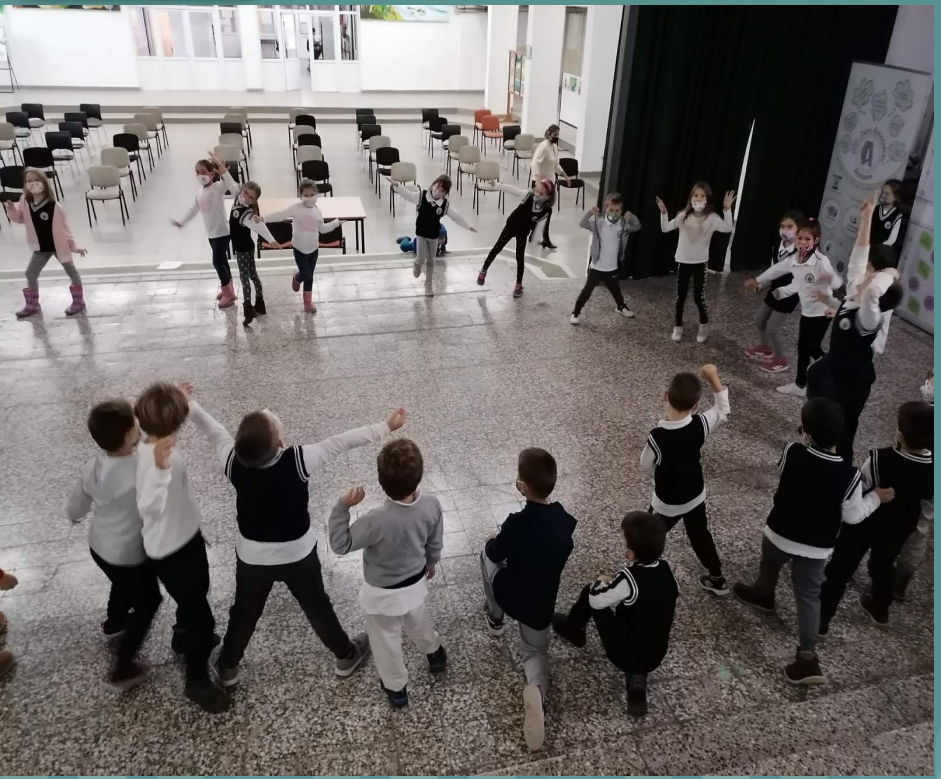

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