



The good sides of the project are:

- ◆ Application of information-communication technologies during the research and acquiring new knowledge and skills
- ◆ Cross- curricular and student-teacher cooperation
- ◆ Development of environmental awareness
- ◆ Adoption of the good working habits

During our work on the project we had certain drawbacks which have influenced the final results:

- ◆ Finding the location for the plant where it can be placed (for the time planned by the project guidelines) without any outside disturbance- a school library was chosen.
- ◆ Programming the micro: bit- was harder for students to accomplish on their own so this stage of project lasted longer than predicted.
- ◆ Batteries didn't last and they stopped working several times because the watering pump and the micro: bit were switched on all day long.
- ◆ During the third week of monitoring, the pump stopped working which put a stop on all projected activities

Conclusion

It is not possible to make a valid conclusion based on the gathered information because the research time period was too short. During the research we had frequent technical difficulties- the necessary equipment malfunctioned. The obtained results didn't give a valid answer to the projects main topic : Do plants use more water if they listen to music? If yes, how do they react to different types of music?

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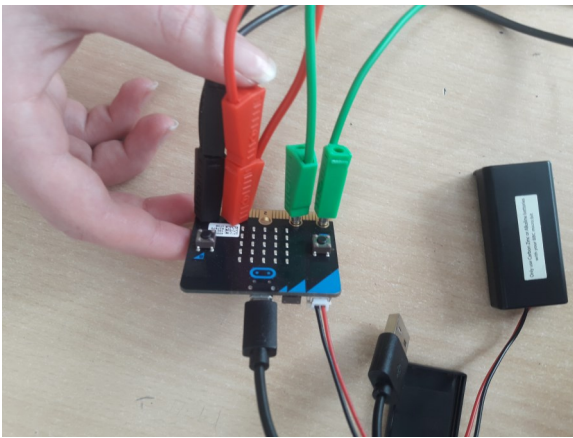


Project „I want a tree“



Theme: Do plants use more water if they listen to music? If yes, how do they react to different types of music?

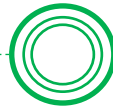




The whole project was coordinated and managed by teachers Ivana Gorić and Ines Erdeši.

The factors of water usage, variation in temperature and influence of music were studied on a plant pansy (lat. *Viola tricolor*). It's a small, cultivated plant which flowers in spring and autumn and reaches at most 20 cm in height. The pansy has heart shaped leaves and can have yellow or white flowers with blue or purple lines on them. Its natural habitats are grasslands and edges of forests but it can also be planted in gardens or in pots placed on balconies and terraces. Pansy is resistant to low temperatures, so it can decorate gardens even during colder weather. The flowering period stops with the arrival of summer and warmer weather.

The project started in the last week of February, when the teachers agreed on the activities which they would do together with the students. The growth of the plant pansy (Lat. *Viola tricolor*) was studied depending on the music that was played. The plant was watered using a micro:bit and a watering set.



STAGES OF PROJECT:

5 – 9 March 2018

Music and History classes – the students of the 8th grade with teachers Dubravka Vukovarac and Smail Hibeljić listened to and selected music recordings which were played to the plant in the time period of 4 weeks.

12 March – 30 April 2018

Maths and Robotics classes– the students of the 7th grade and the teacher Klaudija Hibeljić assembled the pansy watering set, programmed the micro:bit, monitored and maintained the functioning of the micro:bit, as well as the watering pumps.

12 March – 30 April 2018

Biology and Nature classes – the students of the 6th and 7th grades, together with the teachers Snježana Crčić and Mirela Redžić, selected the plants and kept a daily record of the physical changes on the plants.

1 – 4 May 2018

Maths class – Students of the grade 8a, together with the teacher Antonija Ferinac analysed and statistically processed the given data.

9 - 18 May 2018

Croatian language class- the 7th grade students shaped the collected information into a text with the help of teacher Ivana Drgalić.

18- 23 May 2018

English and German classes- The 7th and 8th grade students and teachers Ivan Horvat, Ines Erdeši and Ivana Markić translated the text into English and German.

23- 30 May 2018

IT class- the teacher Andrea Pavić shaped everything (the information, pictures, statistics...) into a brochure.

MORNING						
Date	Consumption of water (ml):	TEMP. (°C):	Changes			
			Number of leaves:		Development of flowers:	
26.03.	0	-	25	23	$1\frac{1}{2}$	$1\frac{1}{2}$
27.03.	0	-	25	23	$1\frac{1}{2}$	$2\frac{1}{2}$
09.04.	30	20	34	31	1	$1\frac{1}{2}$
10.04.	30	13	35	29	2	$2\frac{1}{2}$
11.04.	30	18	32	34	1	1
12.04.	50	8	32	34	1	1
13.04.	30	20	48	34	1	1
16.04.	2	19	48	34	1	1
17.04.	200	17	48	34	0	0
18.04.	170	21	48	34	0	0
19.04.	70	20	48	34	0	0
20.04.	200	20	48	34	0	0
AFTERNOON						
Date	Consumption of water (ml):	TEMP. (°C):	Changes			
			Number of leaves:		Development of flowers:	
26.03.	0	2	25	23	$1\frac{1}{2}$	$1\frac{1}{2}$
27.03.	0	-	25	23	$1\frac{1}{2}$	$1\frac{1}{2}$
09.04.	30	20	34	31	1	$1\frac{1}{2}$
10.04.	30	15	34	31	2	$2\frac{1}{2}$
11.04.	30	23	32	34	1	1
12.04.	70	25	32	34	1	1
13.04.	10	20	48	34	1	1
16.04.	3	20	48	34	1	1
17.04.	305	17	48	34	0	0
18.04.	30	21	48	34	0	0
19.04.	0	20	48	34	0	0
20.04.	-	-	-	-	-	-



THE FACTORS OF WATER USAGE, VARIATION IN TEMPERATURE AND INFLUENCE OF MUSIC WERE STUDIED ON A PLANT PANSY