

**ARISS PROGRAM:
HELLO ISS! SPACE CREW ZMAJEVCI IS CALLING!**

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Abstract: The ARISS (Amateur radio-station on the ISS) educational program is aimed to inspire, educate, and boost the interest of young people worldwide for science and technology. This paper is to present *To the Moon and Back*, project delivered by Primary School “Jovan Jovanović Zmaj” from Sremska Mitrovica, Serbia and the ARISS.

Keywords: ARISS, ISS, *To the Moon and Back Project*

*“This was unbelievable! I cannot believe I have just spoken with an astronaut from outer space! One of the best experiences in my life!”
Dositej Čulić, age 15*

1. “TO THE MOON AND BACK” PROJECT

Primary School “Jovan Jovanović Zmaj” from Sremska Mitrovica, Serbia was a part of the ARISS educational program for the 2019/20 school year with a project *To the Moon and Back*¹. The project partner was the Amateur radio-station Novi Sad, YU7BPQ. Being an entire school project, it embraced the pupils from the first to the eighth grade (7 to 15 years of age) who had a chance to learn about the space during their regular lessons or in after-school clubs. The aim was to explore the universe through both social and natural sciences while using different learning and teaching approaches such as STEM, NTC or CLIL.

The warm-up activity was to install the Solar system model² in the school corridor by the Art teacher, Vojislav Krstić (Figure 1).

The actual project activities started with the World Space Week where the Solar System theme was introduced to the first to fourth grade pupils.

The first graders modelled the system at Art classes.

¹ https://www.youtube.com/watch?v=4x9efUACpY&t=38s&ab_channel=JovanJovanovicZmaj

² <http://zmajsm.edu.rs/wp/sneak-peak-into-a-new-adventure>



Figure 1: The Solar System model at Primary School “Jovan Jovnović Zmaj”.

The second graders had the themed costume party³ and were delegated to present the space to their schoolmates through peer learning.

The third graders used the NTC method to connect the Planets with their Greek and Roman names while competing on a tournament.

The fourth graders connected the space with the primary colours and put up an exhibition. All of them sang the “Zoom, zoom we are going to the Moon” song, played memory games, crossword puzzles and jumbled letters at their English classes.

The fifth to eighth graders had their Little Astronomers after-school club where they looked deeper into the live streaming on the ISS, used ISS Live Now and My Simple Show, made videos about their findings.

The sixth graders explored the planets while the seventh and eighth graders dealt with the Moon landing while preparing themselves for the peer workshops about the conspiracy theories of the same with their Serbian teacher.

The bilingual sixth to eighth graders surfed through the world stage music to find the song with space words and posted them on the online board. The project logo was elected (Figure 2) and we were just getting started.

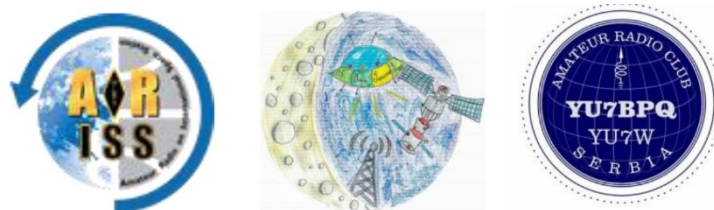


Figure 2: ARISS Logo, *To the Moon and Back* Project logo and Amateur radio-station Novi Sad logo.

For the next two months, there were so many activities. There was a Maths lesson with big numbers using planets and their distance from the Sun. Using the CLIL method, they figured out their Maths problems in English (fourth grade). The fifth graders used shapes from mathematics and created space craft in their Art classes

³ <https://022tothemoonandback.zmajsm.edu.rs/2019/10/09/space-crew-zmajevci/>

embracing arts and mathematics. There was an astronomy retrospective throughout history and so on. Each and every class worked on their own pace and according to their abilities. December was reserved for gathering questions for the astronauts. A box was placed at the hall and 20 questions were selected by the Students' Parliament. Even the guide signs for our school visitors were planets⁴!

Throughout this period, the Amateur radio-club Novi Sad placed the antenna and checked their equipment. The pupils had their crash course in radio transmission and heard the radio statics for the first time being the Z generation. They delivered a huge job! We could not have made it without their enthusiasm and help. ARISS gave us the mentor, Armand, who followed our preparations all the way.

2. WE'VE DONE IT!

Being experienced in former projects, we were convinced we were going to deliver it, but we saw some drawbacks right from the start.

No primary school from Serbia has ever done such thing and we were wondering why, though the list of schools waiting for the project approval worldwide is endless. Then, we could not find any radio club to help us. By pure chance we finally reached Novi Sad and it was a sigh of relief. Thirdly, there are only a few windows to apply with educational project proposals and so many schools who wanted in. Another sigh of relief was when we finally got a go.

Then everything went well until the big day, the actual contact with the ISS. **It took place on the 28th of January 2020 at 4.30 GMT.**⁵

The audience was gathering at the smaller hall while the rest of the visitors and pupils had live feed at another school premises. We streamed live on You Tube. The media coverage⁶ was also amazing for a small- town school. All 20 questions were answered in due time and all of us - students, teachers, and visitors - had a lifetime experience.

Following the school contact with ISS was the night sky watching⁷ with the help of Faculty of Sciences, Novi Sad and "Vobanista" project members. It was planned for the project to continue until June 2020. Alas, Covid-19 emerged.

3. CONCLUSION

Participating in the ARISS project the school had the opportunity to boost pupils' interest in new explorations in science through various activities. The thrill and excitement after the contact was, and still is, a sure sign that teaching and learning should come out of the box/classroom where the board and markers - even computers - are the main teaching tools. Not less beneficial was the school visibility and the gained experience which could lead us to yet another interesting project.

⁴ <https://022tothemoonandback.zmajsm.edu.rs/2020/01/27/space-crew-zmajevci-2/>

⁵ <https://022tothemoonandback.zmajsm.edu.rs/2020/01/28/weve-done-it/>

⁶ <https://022tothemoonandback.zmajsm.edu.rs/2020/01/31/others-about-our-space-project/>

⁷ <http://radioactivedragons.com/mali-astronomi/>