

DECEMBER 2021



Virtual Mobility at Hungary

A LAB IN MY POCKET:

application of the scientific method and experimentation
with smartphone sensors

**PROJECT NUMBER: 2019-1-IT02-KA229-
062237**

Portugal

Virtual mobility to Hungary took place in the Group of Schools in Batalha – Portugal, within the scope of the Erasmus/eTwinning project “A lab in my pocket: application of the scientific method and experimentation with smartphone sensors”, with the participation of students from two 8th grade classes. On the 30th of November, in the morning, the students attended a workshop on the magnetic field (Fig. 1) and in the afternoon workshop they used the spreadsheet to create graphs on the collected data, relating to the levels of sound, light and magnetic field of schools in different countries (Fig. 2). These data were collected by students using the Science Journal application previously.



Fig. 1 - Portuguese students in the workshop on the magnetic field.



Fig. 2 - Portuguese students in Excel sheet workshop, with graphs construction.

Portugal

Also within the scope of the Erasmus / eTwinning project, the second day of virtual mobility to Hungary took place in the December 2nd. In the morning workshop, the students were attended by an expert in the field of robotics, who presented several scenarios that can help to solve complex problems (Fig. 3).



Fig. 3 - Robotics workshop.

In the second workshop, students created a collaborative presentation on the collected data, sound, light and magnetic field levels in the different partner schools. They ended the day with a themed game (Fig. 4).



Fig. 4 - Themed game rating.

Portugal

This type of mobility always presents some technological challenges, but it allowed us to reinforce the idea that scientifically, conclusions should not be drawn only based on direct observations, we have to consider all the variables, in this specific case, the time of day, the number of students, number of computers, among others.

This virtual mobility ended with a Closing Ceremony, on December 7th, in which partner schools shared a presentation video of the respective school/locality/country (Figs. 5, 6 e 7).



Portugal



Figs. 5, 6 e 7 - Portuguese students at the Closing Ceremony.

Portuguese students were delighted to have the opportunity to participate in this virtual mobility to Hungary. They learned a lot and were able to see the partner teachers and students in this project. They hope that, in the future, it will be possible to meet the partners in person.

Italy

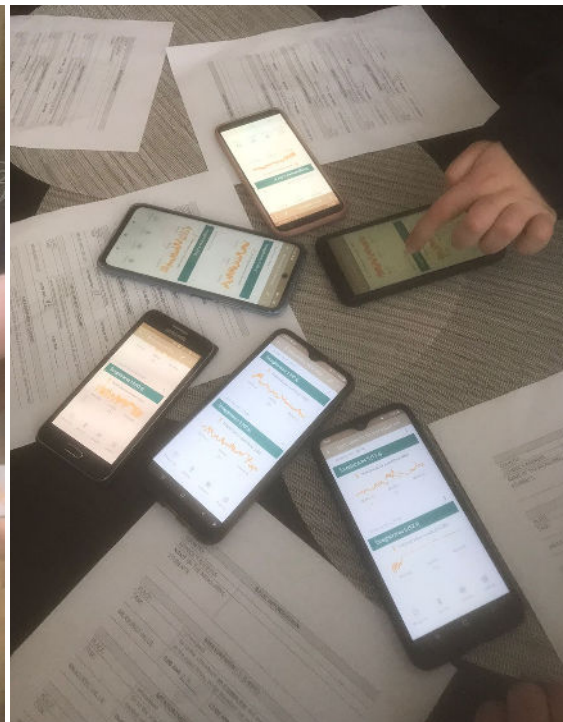
A big adventure: the online mobility

Due to Covid, the mobility was held online on Tuesday 30 November and Thursday 2 December. In the previous days, the students of class V, accompanied by their teachers Ombretta Bucci, Cristina Petronilli, Florinda Trotta and Elisa Pettinari, had gone to the various areas of the school making the surveys that were recorded in a pre-set form. The first meeting also saw the participation of Professor Cristiana Lucarini with class III A of the Palazzi secondary school in Arcevia with the sharing of a beautiful video presentation of Italy made in English by the students. During the workshops the children attended a laboratory lesson on magnetism, then they shared the data of the surveys in an excel sheet and subsequently made a scientific presentation with graphs containing the data of the different countries, data analysis and hypothetical scientific explanations. On the second day, the students of the VA class took part in a lesson on sensors and their applications in the field of robotics. Finally, they participated in an online game with their European companions to demonstrate the acquired knowledge, proving to be fully up to par. This mobility has made it possible to discover how highly reliable scientific instruments can now be within everyone's reach, that teachers have many possible



Romania

*One of the Projects Reunion has ended. A reunion that we have wanted it to be in person, but unfortunately it had to be online due pandemic.
We have spent a wonderful time together, we have learnt so many interesting things and most of all we have made wonderful friends.
If we were to describe it in one word that would definitely be succesfull.
We wish you a Merry Christmas with Peace and Joy.*

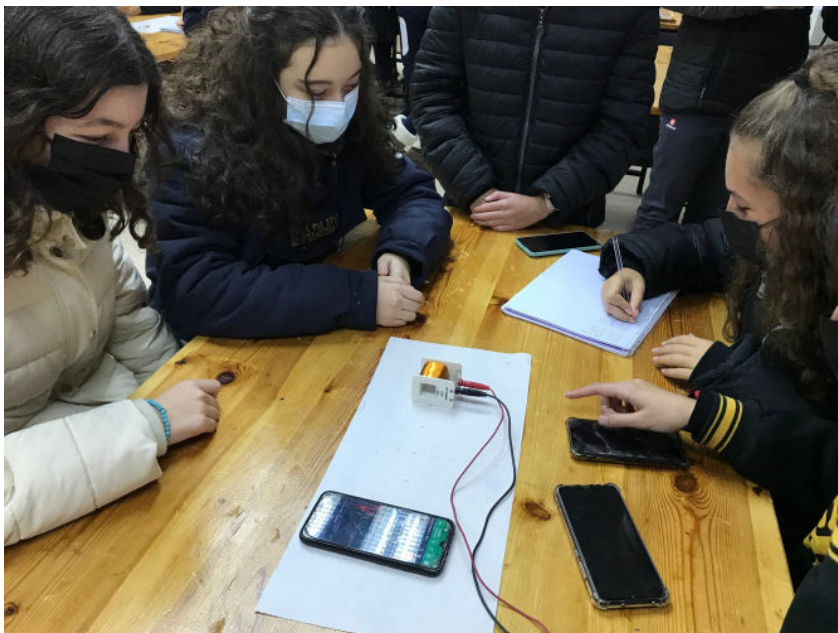


Spain

It has not been easy at all, we all know it. The constant restrictions due to the COVID pandemic have been a disaster for the proper development of Erasmus + mobilities. Even so, we have been able to work together in some aspects and share experiences. We have loved the four workshops carried out by the Hungarian team and our students have been participative at all times, showing a lot of interest in all things shared. They have been dynamic, attractive and interactive workshops.

We really think that these workshops have been an example to follow for future realizations in our project and also for other activities that we are designing for other working groups.

We want to thank for the excellent work done by the Hungarian team and for the good reception that all the other groups have had in these enriching meetings for all.



Spain



Hungary

Opinions of our students after virtual mobility

I think one of the most interesting presentations was the last one, which was about robots. When videos are projected about robots, it's good to see the world is evolving. Our school made the most presentation. They were excellent. On the first presentation we had to put the data to an Excel, so here we had to learn the program how to use, then we had to know PowerPoint as one of the final presentations. I think it was a plus point that we could take part and work together.

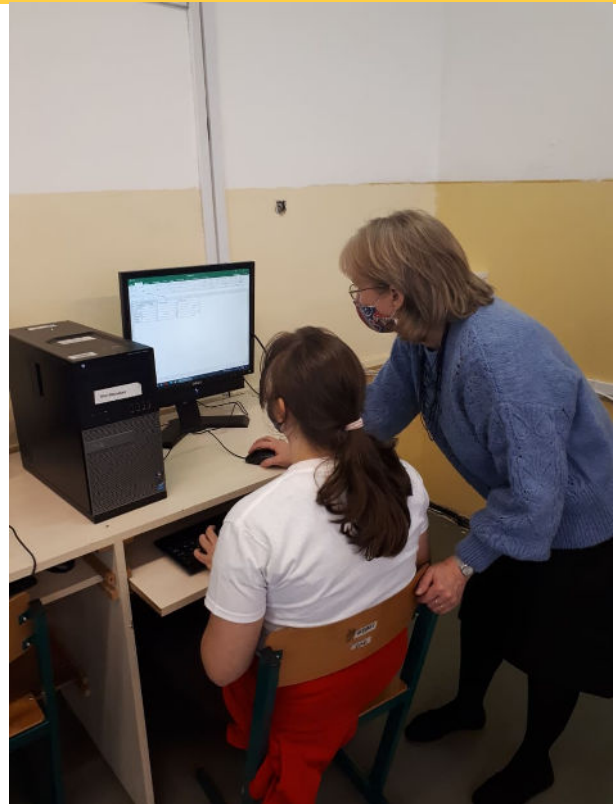
Nimród Nándori



I'm going to write down what I did in this mobility. It all started by the magnetic lesson. It was really interesting to watch how magnets worked. The next one was the I.T. We worked with the data that the countries sent to us. Then we put together into a chart and it was really interesting.



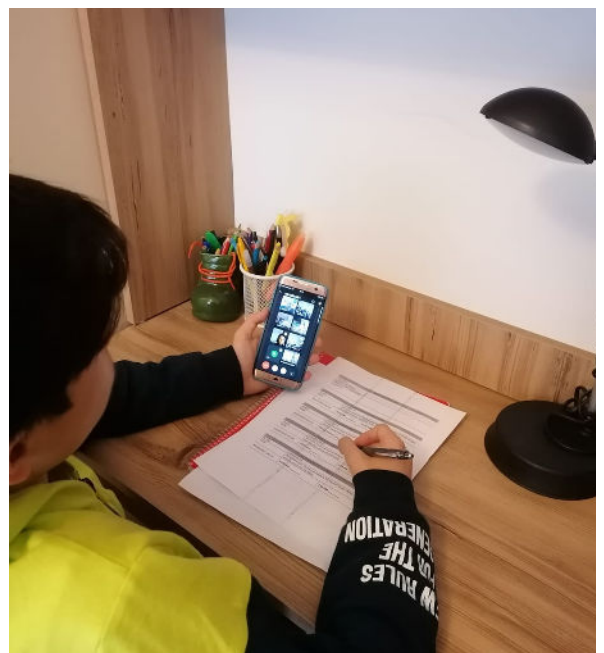
Hungary



Turkey

Between 30 November and 7 December, 30 students and 5 teachers from our school participated in the Hungary virtual mobility. Due to Kovid, our mobility could not take place face to face. Our students and teachers actively participated in all workshops for 3 days in exciting virtual mobility.

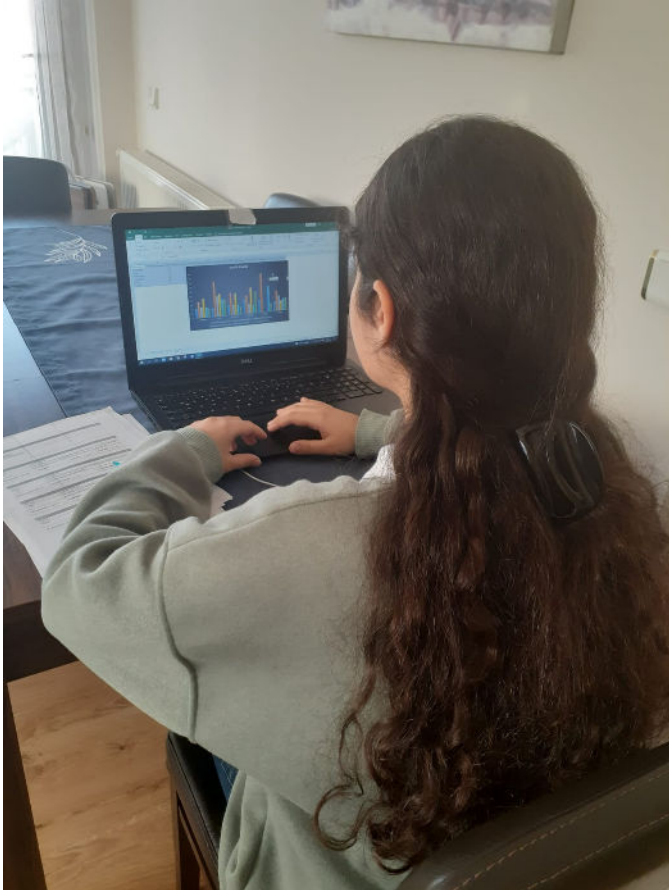
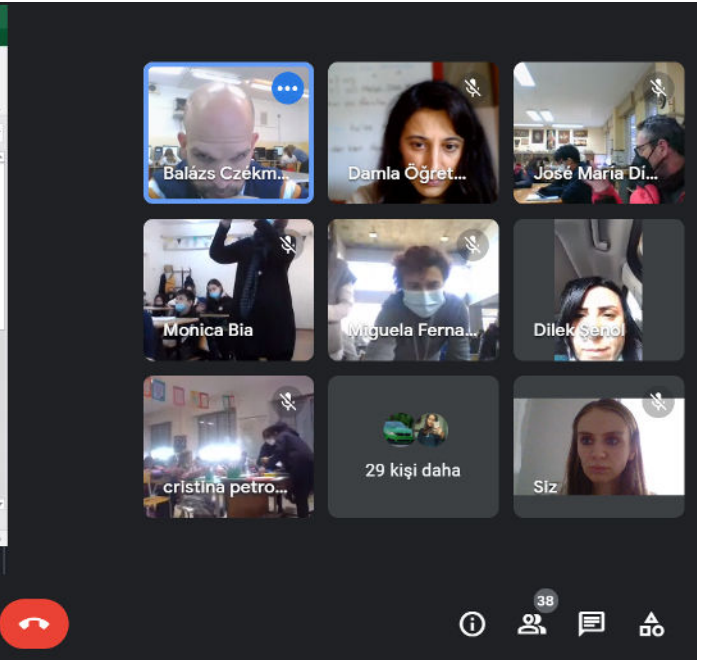
Before the virtual mobility, our students prepared the tasks given by Hungary with the "Arduino Science Journal" application. With this application, they measured light, sound and magnetic field in various parts of our school. And in the virtual meeting, we examined, compared and evaluated this data collected from all countries. We prepared a presentation by gathering the data and applied all the scientific research steps. On the last day, all partners made a presentation introducing their countries. This experience was very enjoyable, inspiring and informative for us.



Turkey

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D
1	COUNTRY	LIGHT (9:00 AM)	LIGHT (12:00 AM)	LIGHT (4:00 PM)
2	HUNGARY	6	30	4
3	ITALY	3	2	4
4	PORTUGAL	4	8	3
5	ROMANIA	2	19	6
6	SPAIN	5	38	32
7	TURKEY	17	19	4
8				
9				
10				



Quizizz from Hungary

1.  The magnet's shown will

- a) not move
- b) attract
- c) repel
- d) all of the above

2.  The magnet's shown will

- a) not move
- b) attract
- c) repel
- d) all of the above

3. Magnets attract things made of

- a) copper
- b) iron
- c) wood
- d) plastic

4. All magnets have 2

- a) fields
- b) colors
- c) poles
- d) all of the above

5. The two poles on a magnet are

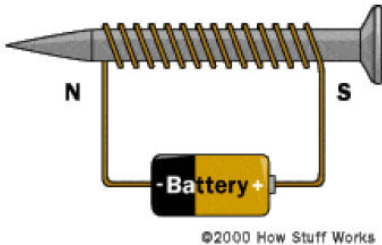
- a) North and East
- b) North and West
- c) South and North
- d) South and West

6.  What do the lines around this magnet represent?

- a) North Pole
- b) South Pole
- c) Magnetic Declination
- d) Magnetic Field

Quizizz

7.



What kind of magnet can be turned on and off?

- a) refrigerator magnet
- b) electromagnet
- c) magnetite
- d) iron

8. To add a picture or clip art to your PowerPoint, you should go to the _____ tab.

- a) Home
- b) Insert
- c) Design

9. To delete a slide, simply hit the _____ button on the keyboard.

- a) Tab
- b) Space Bar
- c) Delete

10. What type of software is MS-PowerPoint considered to be?

- a) Word Processing
- b) Spreadsheet
- c) Database
- d) Presentation

11. Columns in a spreadsheet are:

- a) Vertical
- b) Horizontal
- c) Upside down
- d) right side

12. Rows in a spreadsheet are:

- a) Vertical
- b) Horizontal
- c) Upside Down
- d) Right Side

Quizizz

13. Which sea borders Europe to the south?

- a) North
- b) Baltic
- c) Mediterranean
- d) Caspian

14. Europe is a **continent** with over ____ countries.

- a) 10
- b) 20
- c) 50

15. What are the most important things when you present your scientific research?

- a) Demonstration of the research.
- b) Description of the researchers.
- c) Demonstration of the datas.
- d) Description of the researchers' country.

Puzzle from Turkey

e o n s h e e r e e n p d c
s r a p p l i c a t i o n s
a e r e n e i t o m h i u t
e t d o t c e b i s c l o t
m r u a c t o c n t r m s s
e m i m r r r s o g a p a o
l a n r u o j e c n e i c s
p g o c b m s g i i s s o a
m n o i t a t n e s e r p g
c e t h t g e e e l r n r s
i t g a s n n i o s o s c n
l i d c i e g p i g a e e e
l s n o i t a c i l p p a i
c m l b m n m t m a c s a d

Magnetism
Light
Sound
Data
Science
Robot
Sensor
Application
Microbit
Magnet
Pole
Electromagnet
Presentation
Research
Arduino
Science Journal
Application