

erasmus+ 
logic & maths

LESSONS

- implementation of innovative teaching / learning methods for partner schools in Italy and Poland



IX 2015 – VIII 2017



The implementation of mixed national groups into regular lessons at both partner schools was revolutionary for students and for teachers as well.

At Italian filial schools the lessons were total novelty. The Polish school, which had experience thanks to former Comenius project, gave such lessons for the first time in science, maths and languages.

During the ,Logic and Maths' project more than 25 common lessons were given .

The main teachers' worries were:

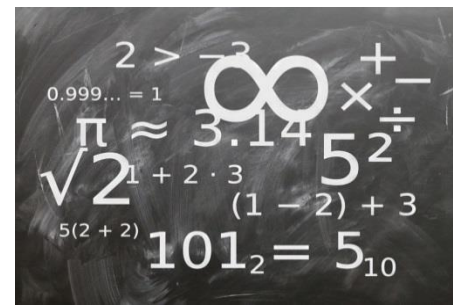
- How to interest students in the topic?
- How to transfer knowledge effectively?

The additional difficulty was:

- How to communicate with students from abroad not knowing the language?!

Surprisingly,

scientific subjects and mathematics
are using supranational languages!



Everybody understands numbers, signs...

Sometimes the way of solving a task is different
but this makes the thing even more interesting
and motivate us to make effort to understand
,why and how'?

And **English is the best ,lingua franca' ever!**

Everybody is able to communicate, if they really
want to!

Thanks to the international experience we have had
and thanks to the possibility
to draw inspiration from each other
the teachers worked out some **methods and conclusions**
for better teaching / learning process
at our schools:

1. **Stop for instructions!** – Let's allow students to explore the thing in their own way. Don't tell them permanently what, when, how they should do. Try to provide the proper conditions for learning only. Stop to act omniscient. You will be surprised how active and creative they can be. You will be even more surprised how much they will remember from the lesson!
1. **Start for sharing!** - Try to involve students in knowledge sharing. Make them active through allowing to exchange information, skills, or experiences. You will be surprised how much they know and even how much you can learn from them!

3. **Move your body!** — Children and youth need to touch, to try, to taste, even to destroy things while learning. They are static enough all the time at school (the youth sits even during breaks!) Especially in science and foreign languages try to make movement actions as often as possible. Learning all the time **from** books while sitting can kill the ability to use knowledge in practise.
4. **Aliens on board!** – Of course we are not Aliens ;-) But if you imagine that all your students are using foreign language maybe you will listen to them more carefully..? Probably it will come out that you will be also more open and willing to understand them fully and start using all senses toward students?
5. **What really matters?** – Is it really so important that your student makes notes on the margin in his notebook? Or that he writes with red pen? Don't pick on him. Stop wasting your time and energy for things that don't matter to much or even at all.
6. **Be careful** -shortly your students will be much better at scientific subjects, new technology and some of them at languages, too. Respect them!

OUR EXPERIENCE

-Lessons during the project-

Methods, conclusions, discoveries

described by:

1. Waldemar Fercho – Physics (2 lessons)
2. Marta Dardi – Mathematics
3. Tiziana Franzoni and Marzena Urban – Mathematics/ coding
4. Tiziana Franzoni and Agnieszka Grabowska –Mathematics
5. Aleksandra Jakubczyk – Chemistry (2 lessons)
6. Ewa Witucka –Geography
7. Marta Dardi and Youth – Daily school life
8. Zbigniew Szmyt – Mathematics
9. Cardarella Sara- Italian for dummies
10. Roberta Faziani-using smartphonrsin Phisics experiments/ Geogebra
11. Alessia Sbano-Moove the dice
12. Tiziana Franzoni:Lab on Pantograph
13. Silvia Landi- Taste my tea
14. Federica Tabanelli_let’s play together (filotto)
15. Paweł Tomaszewski & Angelo Santini –Music
16. Agnieszka Pogiel-Kantorska – Polish
17. Emilia Motko-Kotlarek –English
18. Agnieszka Maciejewska-Balcerzak –Polish (2 lessons)
19. Regina Słowińska – Culture (2 lessons)
20. Angelo Santini -Music: playing the flute

1.

PHYSICS

Simulations of electrostatic phenomena

„Physics exists everywhere! –
Use the fact and make it easier
for students.



Physics is a subject which is considered too difficult especially by girls. In my lessons I try to use the fact that physics is all around. I always try to **find obvious correlations between the subject and real life**. Then students notice it's not that difficult and find the point of learning physics”.



2. «HOME MADE» DEMONSTRATION OF PITAGORA 'S THEOREM



„Using square post-its we manage to explain the theorem of Pytagore building the square on each sides and then using the same post-its to build the square on the hypotenuse.

The student were involved in this experience and they cleary understood the equivalence of the surface.

Simple and pratical experiments teach more than thousands words and when students work they can really understand and remember!”



3.

CODING

Computers can awake the feeling of wanting to give attention to mathematics or of wanting to be involved with and to discover more about the subject.



PATHS

„That was a lesson about coding, students at first had to build simple Paths” connecting images on a grid, then they had to create “their own way” using a programming language: a code.

Students used symbols to create their own paths so everybody could understand the way !

They enjoyed the lesson, and appreciate the importance of using **clear and short shared instruction** to realize a good work with the other.

Being able to create a problem solving strategy , you need a logic way .. not many words....”



CHEMISTRY

My chemistry lab is a kitchen

„Children and youth like to discover if something works or is true.
The best way to teach them chemistry is to **let them do experiments!**

On the lesson with Italian and Polish project participants I only ask them to explore how various substances react and change their colour under the influence of acids and alkalines. We used any kind of groceries: vinegar, coca-cola, melted kitchen salt, milk and even dish soap.

Students were very engaged! They did all tests themselves and got to excellent results. When teachers **trust students**, the results are astonishing”.



GEOGRAPHY

Differences and similarities
in the environment and economy
of Poland and Italy

„Students like to prepare their
own lessons. They look for
information sources, prepare
presentations. They decide about
the final result.



Innovation is simple, you do not need high-level ideas.

On the project lesson I used the presence of two nations. Students discovered knowledge about Italy and Poland and created a mental map. They produced even Polish-Italian Geographical dictionary!

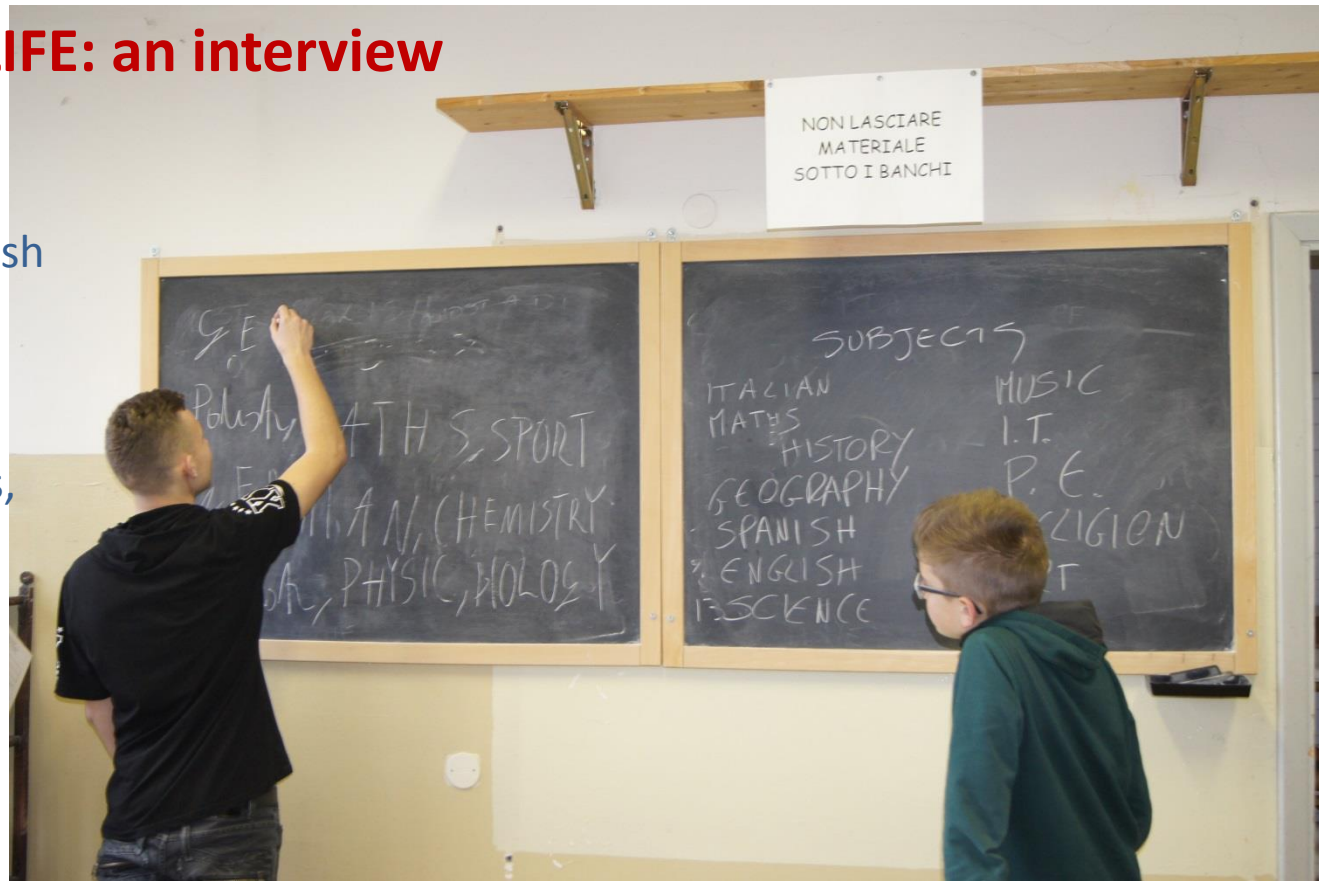
The efficient work on the topic needs most of all **clearly defined objectives**.

If everyone knows his job, he certainly can succeed in it”.

EVERYDAY SCHOOL LIFE: an interview

„Italian students made an interview with their Polish friends to discover the every day life in Polish school.

For each question there was, of course the Polish and the Italian answer so we were able to compare the two School systems.



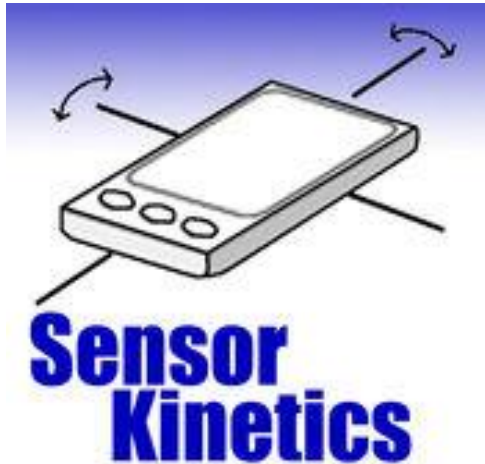
We found a lot of analogies but we discovered as well some differences about school time, the subjects studied and the different use of the rooms: Italian students spend most time of the morning in the same classroom while Polish students move from one room to another almost every hour but they stay at school more hours a day.

But something is totally the same **EACH STUDENT HATES HOMEWORK!!!**

It was a good lesson-, all - students wanted to participate because they were talking about their real life.

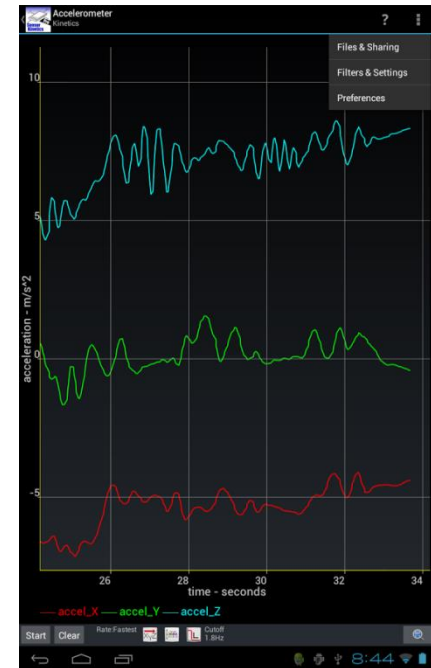
If we give **the right input** everyone tries to communicate!!!”

USING SMARTPHONES IN PHYSIC EXPERIMENTS



„Nowadays everyone has got a smartphone but really few of us know all its potential.

Using its sensor + some application we obtain a “personal lab instrument”. In this lesson we made some experiments using Sensor Kinetics.



It was a motivating lesson, and each student was involved using his/hes smartphone. The aim of the lesson was not only to do experiments but also make the students aware of the powerful instrument they always use ...and it's up to them if they use it in the “right way”

In the end we discovered the infrared and used our smartphones as a thermal camera.”



8.

MATHEMATICS

Geometric figures

„The area of a circle and the value of Pi were our main problems to solve. Students realized that the mathematics symbols used during the lesson are the same. The ways of getting the conclusions are similar, too. Anyway, **the result must always be the same!** Students were even very interested in names of geometric shapes and mathematical determinations in Italian, Polish and English.”



LAB on PANTOGRAPH

„Following some indications, students had to work with this tool, they themselves understood the possibility to double or halve an image with this machine.

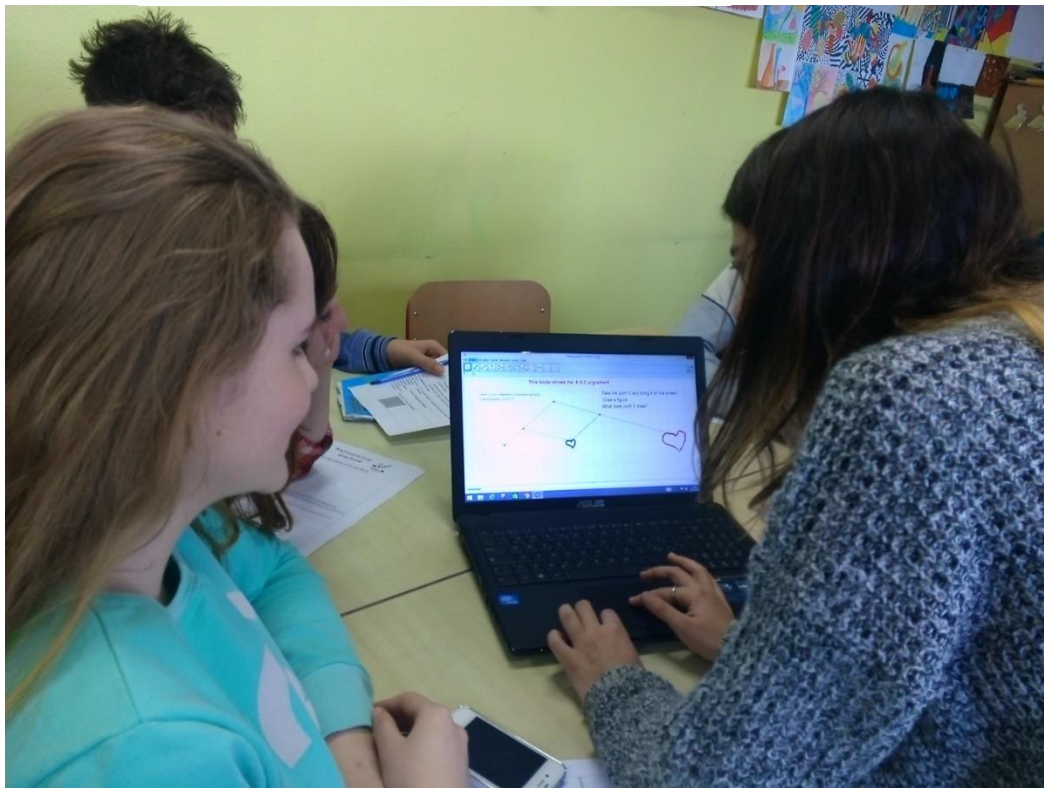
Students were really proud of themselves!
Sometimes it's better to give only **some inputs** and wait the result of student's observations and experiences.
And enjoy the brilliant light of their eyes!”



10.

From past to modernity: Geogebra and pantograph on PC

GeoGebra
Dynamic Mathematics for Everyone



„In the end students worked on PC to enlarge or reduce geometric figures.

This lab with tools from the past to present was really interesting: students realized how man has always worked to find the way to make everything easier and faster.”

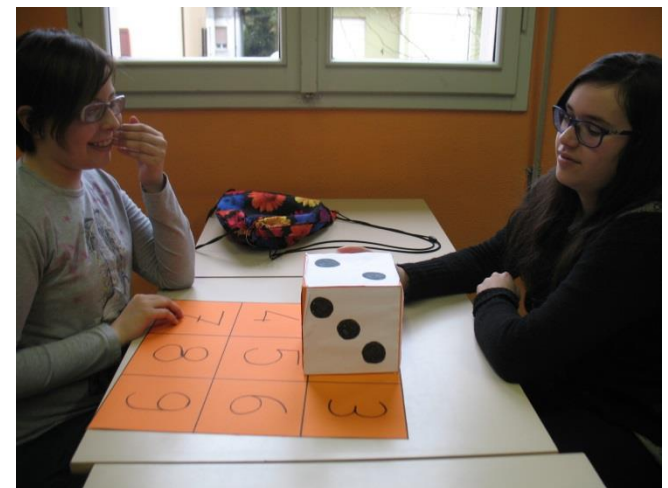
MOOVE THE DICE

„First step.....looking for the righth strategies.

The aim is to collocate the dice on the number 7 following rules about its movement....

Italian and Polish student worked to that porpouse. It was really important to observe the way they worked together...they didn't know the right words to express their idea so they just moved the dice and looked carefully to the others attempts....

Observations...an important way to learn!”



Let's play together filotto

„Easy game.. to start with

This is a strategy game, Polish and Italian students played easily together. There are few simple rules: it's like noughts and crosses but in addition you have to move your pieces on the grid. The aim is to gain point and “kill/ eat” your enemy piece.



To improve the ability to change your plane after each enemy's movement.. you have to try to figure out what can happen... and sometimes forget about your plane... and just to stop your enemy!!
Good gym to improve flexibility.”

MUSIC

Sing Polish and Italian!

The fastest way of learning
language is to sing it!
So we did during the project.
If you haven't tried it yet,
you definitely should.

The phrase which is sang, gets more quickly to your memory and we are able to retain it easily because it is associated with something nice and positive. We even connect it in our minds with situations, places and people who /which are present while singing.

Music is the key! 😊

PS For the project we wrote and sang our own anthem in Polish, Italian and English!



12.

POLISH

Funny sounds

„Learning one of the most difficult foreign languages –Polish- can be really exciting!!

During the lesson we decided to use the beautiful Italian weather and went outside. The sun had a positive impact on our moods and ability to deal with the pronunciation.



The conditions allowed us even to teach with **‘a screaming dialogue’** –a method which is difficult to use in closed classrooms at schools (students scream really loudly 😊).

Teachers should definitely **use the space**, take out students if there are conditions. In case of bad weather we should try to **arrange the space** in classrooms differently, f. ex. move chairs, sit in a circle etc.”



ITALIAN FOR DUMMIES :)



„A lesson to introduce some simple sounds and words of Italian language.”

14.



ENGLISH

Create your AVATAR

„The problem with teaching teenagers how to describe appearance is that students don't like talking about themselves. To make it easier I told them to draw their avatars. They were really eager to do that and their work was very creative. Then, they just had to tell something about their funny images. They coped with it without any problems. It turned out to be a success. It's crucial to **make an effort** to encourage youth to overcome psychological barriers.”



15.

ZGRZYTAM, CHRZĘSZCZĘ I SZELESZCZĘ

„There are solutions in case of difficulties.
You are at a particular time and place and
you have to deal with them somehow even
if there ...problems happen. And if you
stand firm, resist it, then it can accure that
they **reverse to success.**

It wasn't an easy task to explain some Polish
specifics. But the way all students dealt with
it was an unexpected achievement!”



16.

POLISH CULTURE AND TRADITION of Poland

„Using all senses we understand
and memorize things better.
For the lesson Polish students
baked buns! They prepared a
presentation and additionally let
our Italian friends to taste, to smell
and to touch this culture.”



TASTE MY TEA

„Near Casola Valsenio there is a famous Botanical garden

We used our smell and our taste to guess the herbs we were using.
It's important at any age of our students **use the fifth sense**... unlikely it's usually considered a kind of experience for only very young learners.



Then we had a lovely cup of tea.”



17. PLAYING THE FLUTE



„Music is an international language, we can have some light differences in our typical music lesson but the involvement of the students is always good...and even if someone doesn't like playing an instrument or singing all our students enjoy listening to music!”



LET'S PLAY ALL PROJECT LANGUAGES!

Every nation has its own gesture songs or there are some with the same melody but translated in many languages.



Thanks to the 'project youth' all children at Polish school could feel the international atmosphere and learn some foreign phrases by singing and playing. They had really fun!

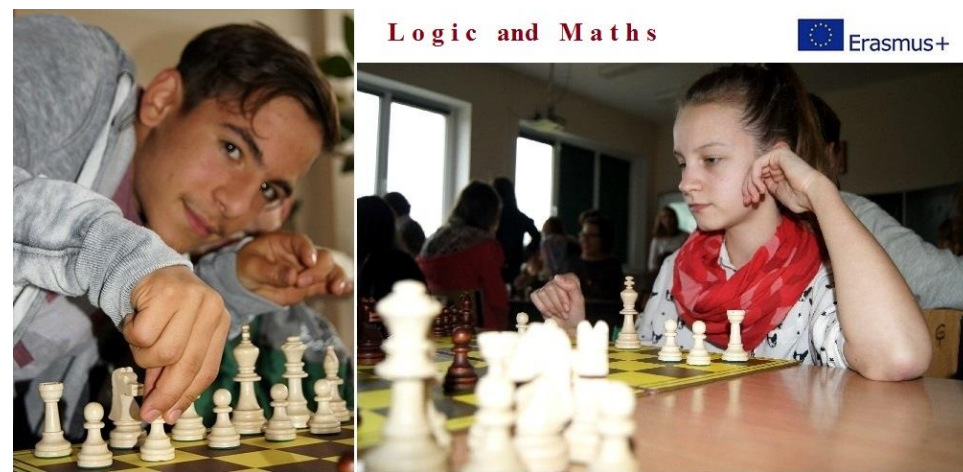


LESSONS in THE MUSEUM of science in Faenza



Here we got knowledge about the Earth
and other planets, gravity, the Sun...
All this and much more...
And now we are even more and more
interested in the Universe!





CHESS

WORKSHOPS AND CONTESTS

Is chess a logical game?
Yes. But there is also full of
spontaneous decisions
and determination.
It influences our brains
positively.
So, let's play!



CHECKERS FOR CHILDREN

Youth from the project group gave workshops for their younger friends in Poland and in Italy during the visits.



The children were very concentrated on the game. Surely they learned how to deal with problems in their real life.

Very good start to the chess game!



„Solving TANGRAM

can improve spatial skills
and boost mathematics
performance by youth
and children.



During the project it was one of our work-up exercises which help kids learn geometric terms and develop stronger problem solving skills. It was Tangram.

In the pictures both Italian and Polish students concentrate on the puzzle.”

POLONEZ

„This was a real lesson of culture!
All school in Lubostroń with official guests and Italian friends from Riolo Terme and Casola Valsenio floated in the traditional Polish dance to the music of Fryderyk Chopin.



Touching!
Unforgettable!
Moving!

'Logic and Maths'

IX 2015 - VIII 2017

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erasmus+ 
logic & maths



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