



Barcelos, Portugal  
16 to 20 de April 2018

“newWERD: New Ways of Educational Research and Development”

2017-1-MK01-KA219-035415



**AGRUPAMENTO DE ESCOLAS DE BARCELOS**  
BARCELOS, PORTUGAL

**SOU GIMNAZIJA KOCO RACIN –VELES**  
VELES, MACEDÓNIA

**LICEUL TEORETIC "TUDOR ARGHEZI"**  
CRAIOVA, ROMÉLIA

**I.I.S. ERASMO DA ROTTERDAM**  
NICHELINO (TORINO), ITÁLIA





MONDAY 16 APR

10:00 - Reception at the Escola Secundária de Barcelos

\* Jorge Saleiro - Director of the Barcelos School Grouping

\* Fernando Carvalho - Coordinator of the European Project

10:30 - Visit to Barcelos Secondary School

11:30 - Presentation of schools, city and country partners of the project

12:00 - Reception at Barcelos Town Hall

13:00 - Lunch

15:00 - Visit Barcelos City

17:00 - Reception at Barcelos Town Hall

20:00 - Dinner

## Project Summary

### CONTEXT/BACKGROUND

#### Context:

Today's students are tomorrow's leaders. Occupations in STEM-related careers are some of the fastest growing and best paid of the 21st century, and they often have the greatest potential for job growth. Building a solid STEM foundation through a well-rounded curriculum is the best way to ensure that students are exposed to math, science, and technology throughout their educational career. Students are extremely curious and impressionable, so instilling an interest at an early age could spark a lasting desire to pursue a career in any of these fields. Project proposal addresses to the field specific priority to strengthen the profile of the teaching profession, dealing with complex classroom realities and adoption of new methods and tools. It supports pupils' involvement in learning and offers a pedagogical approach where teachers will become mentors of creativity. Besides teaching knowledge in classroom, the project suggests teachers making students become creative, motivate them and teaching them how to include and use science, mathematics and technology in real-life situations.

#### The objectives of the project:

- Implementing innovative practices in education and use of open educational resources and new technologies;
- Enhanced professional development of teachers involved in the process of education;
- Decline the STEM teaching disciplines on concrete issues;
- Stimulate interest in students towards a knowledge proposed by experimenting, with forms of learning on the job in real situations;
- Acquire skills in the use of software for the control and calculation of energy losses, data processing, spreadsheets and presentations;

#### Number and profile of participants:

All of the organization partners in this Partnership are experienced in the field of teaching science and mathematics and they will contribute to a great extent for the realization of the proposal. There is total number of about 25 key persons that will be included with working assignment and in training activities.

#### Activities

1. selection of staff involved in the project, quality assurance, budget control and time management, risk management, acquisitions, financial reports, archiving, reporting to the National Agency and European Commission
- 2 Outputs - all learning-teaching materials-results of the project are collaboratively designed set of innovative activities. Materials will be consolidated on the web page of the project where they can be adopted and applied by other teachers.
- 3 Four Short-term joint staff training events
- 4 Three transnational project meetings (1 in Macedonia, 1 in Portugal, 1 in Italy)
- 5 Dissemination activities (within the institutions involved in the project, in other institutions, public events and mass media coverage, publications and scientific events, graphic materials and online dissemination).

#### Methodology

STEM is a curriculum based on the idea of educating students in four specific disciplines — science, technology, engineering and mathematics — in an interdisciplinary and applied approach.

The methodologies used are:

- Inquiry-based learning
- Learning-by-doing
- Learning on the job and on the field

#### Results

Results of the project are collaboratively designed set of INNOVATIVE ACTIVITIES. The project exchanges pedagogical methods and best practices through school visits and the exchange of ideas and lessons. Materials will be consolidated on the web page of the project where they can be adopted and applied by other teachers.

#### Impact

##### 1. Impact on participants:

- Developed capacity to productively engage in STEM learning activities;
- Development of effective and attractive STEM curriculum and teaching methods;
- Exchanged experiences and good practice, learning activities and workshops;
- Increased level of use of ICT-based methodologies for STEM learning and providing more attractive form of STEM education;
- Confidence, motivation and enthusiasm for STEM subject;
- Experience of different teaching methods;

##### 2. Impact on target groups:

- 21st century competencies;
- Increased problem-solving skills;
- Engagement, interest, enjoyment and achievement in STEM subject.

The potential long-term benefits

This project will be beneficial experience for all participants to experience how to be a part of multicultural team.

1. new innovative approach to teaching and learning science and mathematics.
2. new partnerships and projects to further enhance the results of this project



## Description of the Project

Today's students are tomorrow's leaders. Occupations in STEM-related careers are some of the fastest growing and best paid of the 21st century, and they often have the greatest potential for job growth. Building a solid STEM foundation through a well-rounded curriculum is the best way to ensure that students are exposed to math, science, and technology throughout their educational career. Students are extremely curious and impressionable, so instilling an interest at an early age could spark a lasting desire to pursue a career in any of these fields. By the time a student is ready to enter the work force, they must have enough knowledge to make invaluable contributions to our nation's STEM industries. It is also important that schools have an ample amount of teachers who are experts in STEM, and these subjects should always be considered as high demand subjects. STEM is more than just a grouping of subject areas. It is a movement to develop the deep mathematical and scientific underpinnings students need to be competitive in the 21st-century workforce. But this movement goes far beyond preparing students for specific jobs. STEM develops a set of thinking, reasoning, teamwork, investigative, and creative skills that students can use in all areas of their lives. STEM isn't a standalone class—it's a way to intentionally incorporate different subjects across an existing curriculum. In a globalized world where international interaction has been easier and more common, exchange of ideas and experience between teachers in different countries will help new methods and techniques be developed. Particularly face-to-face dialogues for a common purpose strengthen mutual interaction so that they can teach STEAM subjects more efficiently and effectively.

Project proposal addresses the field specific priority to strengthen the profile of the teaching profession, dealing with complex classroom realities and adoption of new methods and tools. Besides teaching knowledge in classroom, the project suggests teachers making students become creative, motivate them and teaching them how to include and use science, mathematics and technology in real-life situations.

The objectives of the project:

- Implementing innovative practices in education and use of open educational resources and new technologies;
- Reinforce the centrality of the student as part of a training process, boost motivation to learn, the ability to build its own learning & training path, the sense of responsibility with respect to the future path;
- Enhanced professional development of teachers involved in the process of education;
- Decline the STEM teaching disciplines on concrete issues;
- Stimulate interest in students towards a knowledge proposed by experimenting, with forms of learning on the job in real situations;
- Develop skills of self-orientation and train students to have confidence in themselves, demonstrate initiative, flexibility and mental agility, willingness to change;
- Acquire skills in the use of software for the control and calculation of energy losses, data processing, spreadsheets and presentations;
- Raise awareness of students and staff of the school to adopt a different behavior that will lead to a more rational use of energy;
- Develop a collaborative learning, utilizing the expertise and knowledge of others (classmates, teachers and professionals).

The reason for our wish to carry out the project transnationally is to involve schools who already have experience with similar projects. In a time when STEM has become one of the most important values in European education the aim should be to develop other priorities, which are creativity, motivation, cooperation and team work on an international scale. All of these priorities are part of the partner school framework, but this project will give them new multicultural and social impacts. Because this project will be the focus of all school partners, it will also become the flagship of international education in all municipalities in partner countries. Namely, the schools that have been involved have curricula that can be compared to ours. We will be able to make a comparison with the topics, matter, and types of problems that students in different countries have and also share the experience and knowledge with teachers from the selected countries.

The strategic partnership we propose is focused on three main topics:

1. the teaching of STEM (Sciences, Technology, Engineering, Maths) by analyzing concrete problems and current challenges, such as energy efficiency in public buildings, climate change, radioactivity.
2. the development of self-entrepreneurial skills, even in general secondary schools, where many students are interested in starting the profession at the end of university studies
3. methodological innovation through the use of ICT and learning methods on the field, on the job, cooperative learning and blended mobility.

04:30 - Bus departure to the airport Porto

10:00 - Visit Oceanário de Lisboa

12:30 - Lunch in Shopping Oriente

14:00 - Visit to Pavilion of Knowledge - Living Science - [Pavilhão do Conhecimento - Ciência Viva](#)

16:00 - Free

20:00 - Dinner

TUESDAY 17 APR



WEDNESDAY 18 APR

09:00 - Visit Lisbon city

12:30 - Lunch Free

17:00 - meeting in front of the hotel

22:00 - Dinner



THURSDAY 19 APR

09:00 - Visit to Barcelos Market

10:30: - workshop and lecture on the theme  
Nuclear physics, **Dosimetry**, Making a Cheapest nuclear  
radiation detector - Ion chambe

12:00 - Lunch

14:30 - workshop and lecture on the theme  
Nuclear physics, **Dosimetry**, Making a Cheapest nuclear  
radiation detector - Ion chambe

20:00 - Dinner

FRIDAY 20 APR

08:30 - Visit to Porto city  
- Visit the caves of Porto Win  
- Travel of Boat in Douro River

13:00 Lunch

14:30 - Visit Monuments in Porto center

20:00 Final Dinner  
Delivery of Certificates