



## Project Partners

### Germany

BERUFSBILDENDE SCHULEN RINTELN

<https://www.bbs-rinteln.de/>

### Italy

**coopcramars**  
TEACHING/GUIDING/SEARCHING

<https://www.coopcramars.it/en/home/>

### Spain

**Fundación Docete Omnes**

<http://www.doceteomnes.com/>

### Germany

**IBE Institut für Bildung & Erziehung**

<https://www.ibe-goettingen.de/>

### Macedonia



<http://www.lifelonglearning.mk>

### Macedonia



<https://sumnal.mk/en/>

# Maths For Minis – MfM

[www.MathsForMinis.eu](http://www.MathsForMinis.eu)

Project-No. 2108-1-DE02-KA202-005080  
01-10-2018 to 30-09-2020



May 2019

## Newsletter No. 3

### Foreword

**Project Description and Distribution of Tasks  
Exhibition Minimathematikum in Skopje**

**February 11<sup>th</sup> – 22<sup>nd</sup> 2019**

**Exhibition Minimathematikum in Bitola**

**February 25<sup>th</sup> – March 08<sup>th</sup> 2019**

### Contact Details



**May 2019**



[www.ibe-goettingen.de](http://www.ibe-goettingen.de)

## **Foreword**

**Dear Reader,**

Our project has been running very successfully for several months now. We know that our exhibitions have aroused great interest - not only among the children, who have worked almost euphorically with the objects, but have also thrilled parents and educators.

If you, dear reader, are reading our newsletter for the first time, we recommend that you first read the project description on the following pages.

In this newsletter you will find reports about the recently completed exhibitions in Skopje and Bitola *which also include assessments by local educational professionals involved*

We sincerely hope the reports will catch your interest. Please do not hesitate to send us an e-mail if you have heard of similar projects or if you would like to submit suggestions from kindergarten, schools and university.

Yours sincerely,

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## Project Description and Distribution of Tasks

### Maths for Minis - MfM

The background and working context of the project is the fact that Europe's prosperity is based on the economic and technical innovation capacity of its citizens.

In order to secure a sufficiently qualified specialist base in mathematics and natural sciences as a prerequisite for Europe's economic competitiveness for the future, the educational opportunities and resources of young people for the so-called MINT area (mathematics, IT, natural sciences and technology) must finally become better and earlier be used.

In almost all European countries, there are only few successful attempts to motivate individual target groups for the mathematical and scientific area. It is therefore finally necessary to provide more effective teaching materials and teaching methods that are suitable to interest as many target groups as possible in the MINT area (eg girls, certain immigrant groups, disabled children and other socially disadvantaged groups).

**The aim of this strategic partnership is to strengthen the focus on mathematics in the area of early childhood care, education and development of young people throughout Europe.**

The applicant uses the traveling exhibition "**MiniMathematikum**". The concept of the "**MiniMathematikum**" has meanwhile been tried and tested for many years. The touring exhibition from the **Mathematikum in Giessen** has already proven in practice that it gives children between the ages of four and eight years the opportunity to enthusiastically explore mathematical phenomena. It also lends itself as a basis for a discussion on the reorientation of mathematics education.



In a two-year program with European partners, we will exhibit and operate the **MiniMathematikum** in each partner's country after intensive preparation. Participating partners will monitor the young visitors / classes of the exhibitions and develop insights into what additional conditions must be created to make certain groups more enthusiastic about mathematical phenomena.

Each partner will focus on the observation on specific issues:

- Gender aspects,
- Children with a migrant background,
- Children of Minorities (Roma),
- Disabled children etc.

Visiting the traveling exhibition creates additional incentives for children to engage in non-verbal communication with each other, which educators use as an important tool for integrating children. The network partners exchange the results and impressions and disseminate them in a variety of ways.

Particular importance is attached to the regional training events, because in this way pedagogical specialists can be addressed directly and the use of the results can be directly ensured.

The intensive support provided by the IBE for short-term joint staff training events also ensures the emergence of transnational networks.

The overall results are finally presented and disseminated at a international congress in Germany.



## Distribution of Tasks

The participants agreed to the proposed distribution of tasks and main focuses of observation.



**TRAVELING EXHIBITION  
FOUR COUNTRIES - SIX PARTNERS**

[www.MathsforMinis.eu](http://www.MathsforMinis.eu)

**Where?**

The traveling exhibition can be visited in different project countries

**When?**

The traveling exhibition is open

**Skopje (MK) - February 2019**

**Bitola (MK) - February/March 2019**

**Tolmezzo (IT) - May 2019**

**Granada (E) - October 2019**

**Rinteln (D)- January 2020**

*According to the recommendations of the Mathematikum, a time frame of 90 minutes is planned for registered groups to visit a traveling exhibition*

The visit to the exhibition is free

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**Cramars, Italy:** Migrants' children.

**FDO, Spain:** Disabled Children

**SUMNAL, Macedonia:** Roma Children

**LLC Macedonia:** Female Children

**BBS, Germany:**  
Children/Educators in Day Care Centers

Applicant organization:

**IBE** Institut für Bildung & Erziehung **Germany**



**Biljana Mojsovska Manojlova**

## **EXHIBITION MINIMATHEMATIKUM IN SKOPJE,**

**February 11<sup>th</sup> – 22<sup>nd</sup> 2019**

In accordance with the project aims and planning, the first journey of the travelling exhibition “MiniMathematikum” was to North Macedonia. Its’ first destination was Skopje – the capital, where it was exhibited in the period 11-22 February 2019, in line with the project timeline. This project activity was conducted by the project partner Lifelong Learning Center. In general, this activity was implemented with success, as arranged and planned.

The exhibition was set up in the Public Institution House of Culture “Kocho Racin” – Skopje.

For this purpose, the project and the exhibition were promoted in several schools and kindergartens and other facilities, such as day care centers. In this context, the schools and kindergartens were invited to join in by organizing group visits for their pupils in the age range 4-8 years.

The exhibition was held in the period 11 – 22 February 2019. Three elementary schools (grades 1<sup>st</sup> to 3<sup>rd</sup>) and two afterschool day care centers participated. In addition, in the frames of a family day held February 16<sup>th</sup>, additional children were welcomed. A total of 558 children in the age 4-8 years visited Minimathematikum.

It is important to underline that the schools showed great interest and motivation to get involved in the exhibition.

The team members of Lifelong Learning Center, who received introductory training, were hosting the visits. As recommended, one visit lasted 90 minutes.

The analysis of the project documentation (participants lists, questionnaires) showed following figures:

- a) Teaching staff           **38**
- b) Children in total       **558**



*Picture: MiniMathematikum*





out of which, **298 girls** and **260 boys**.

Out of them, **5** are with disability and **29** are Roma.

c) Parents **13**

Information was spread on the FB profile of the Lifelong Learning Center, through which **3132** people were reached through the reporting during the exhibition period.

In addition, Lifelong Learning Center created a separate page Minimathematikum Macedonia, where info and pictures from the exhibitions were posted on daily basis.

A total of **1143** people were reached through this page in the period of the exhibition in Skopje.

After the completion of the exhibition, the administration of this page was handed over to the partner Sumnal, in order for them to continue reporting with their exhibition.

The participation of the Lifelong Learning Center in this project in general, and the opportunity to organize and host the exhibition Minimathematikum, was a unique experience. For the team of the Center it was a valuable new experience and an extraordinary learning opportunity.

From the two-week hosting and guidance of 22 groups of 558 children, following experiences were made:

- *The children are impressed as they enter and see the exhibits and they are euphoric*
- *The teachers are also amazed and thrilled and also actively play and explore*
- *In the first 15 – 20 minutes, the children have a rather disoriented behavior, they explore all play stations. After that, they slow down and begin to play with more attention and start choosing to play with preferred play stations.*
- *The educators' team of Lifelong Learning Center had the experience that the 90 minutes foreseen for one visit, are too long. It was anticipated that*



*after approx. 60 minutes, children start to get hyperactive and lose attention. Therefore, in most of the cases the sessions lasted 70-75 minutes.*

From the discussions led with the managerial staff and the teachers of the elementary schools and their feedback about Minimathematikum, it is clear that this kind of approach in bringing mathematical concepts closer to children, is not present in the formal school education in North Macedonia. Due to various factors, the current circumstances in the constant changing of curricula for children from 1<sup>st</sup> to 4<sup>th</sup> grade, there is a gap related to practical educational work, which creates a need for such concepts as Minimathematikum.

The interest and willingness of elementary schools for visiting Minimathematikum was much bigger than the capacities to accept them in the given period of 15 days. From that aspect, there is a need for addressing the lack of practical methods and suitable equipment and learning environment in schools for teaching and learning mathematics. The presence of Minimathematikum for a longer period of time (6 – 12 months), in the form of a project cooperation, would be a possibility to cover more schools, not only in Skopje, but also countrywide.





**Viktorija Mihajlovska**

## **IMPRESSIONS OF THE EXHIBITION IN BITOLA**

**February 25<sup>th</sup> – March 08<sup>th</sup> 2019**

The project “Maths for Minis” funded by the Erasmus program started in October 2018 and will end in September 2020. It is implemented by four countries (Germany, Italy, Spain and Macedonia) by organizing exhibitions with exhibits from the museum Mathematikum in Giessen, Germany. The exhibitions in Macedonia had great success. They took place in Skopje and Bitola.



In Bitola, the exhibition was held from the 25<sup>th</sup> of February till the 08<sup>th</sup> of March 2019 in the city library. It was visited by more than 800 children and 47 teachers. The target group of observation were the Roma children. According to the observation, there is no difference in behavior or accomplished results between the Roma and the other children.

We talked to the teacher Gzime Kominovska from the kindergarten “Snowflake” in Bitola who teaches Roma children. When we asked her to share the impressions of the exhibition she stated:

*“As an educator, the exhibition left me wonderful impressions. With this kind of innovative activities, children develop the motoric and logic skills, and have ease of access to the mathematical phenomena. The children (Roma) were thrilled, very happy and had a lot of fun. I think that in the preschools this kind of creative approach for teaching math should be implemented so that the children develop love towards the subject since their early age.”*

Part of the exhibition were also 44 students from the Faculty of Pedagogy in Bitola, who came together with their professors d-r Dance Sivakova-Neshkovski, d-r Marija Ristevska, d-r Biljana Gramatkovski and d-r Josif Petrovski.



Their impressions of the exhibition were connected to their lectures regarding the subjects Methodic of teaching math for primary school teacher students and Methodic of the educational work in math for the preschool teacher students. We talked to prof. d-r Dance Sivakova-Neshovski and she explained in details this implementation of their impressions from the exhibition. For the connection with the lectures for preschool teacher students she stated:

*“With the students from the preschool teachers group we made a connection with the curricula they study regarding the subject Methodic of the educational work in math in the part which refers to the goals of the educational work in math, especially from the aspect of reaching the children’s intellectual development, the development of their cognitive abilities, encouraging of their socio-emotional development, building positive traits of the children’s personality, and gaining some quantum of mathematical knowledge. We connected the exhibition to the content related to the psychological base of the educational work in math and the theories for development of the thinking process at the preschool children in the part of the start and development of the logical operations, as conservation, clasification, inclusion of classes and serialization.”*

We were very curious to know about the impressions of the primary school teacher students, so we asked prof. Daniela to explain the connection of the exhibition to their knowledge and experience. To this she responded:

*“With the primary school teacher students we connected the exhibition to some of the content regarding the subject Methodic of teaching math in the part of the methodic approach in implementing the mathematical notions, and more precisely to the concrete-inductive and abstract-deductive approach. We made connections with the curricula regarding the process of thinking in forming relations, like material performance of the activity, speech performance of the activity and transfer of the activity on a thinking level. Also we made connections to the curricula regarding the mathematical conclusion in terms of inductive, deductive and analogic conclusions. A connection was made with some content regarding the student’s thinking activities which present one of the more important goals like the development of the student’s thinking process. This refers to the thinking operations which we look at as thinking activities: analysis, synthesis, comparison, abstraction, generalization, but also the process of conservation as well as understanding*



*the invariance of sizes, the appearance of reversibility, interaction, classification and serialization.”*

The opinion for an exhibition of this kind of a pedagogical expert like professor Danica is very important for us, so we asked her to tell us what kind of importance this exhibition has for the future teacher students. She said:

*“The exhibition “Maths for Minis” for the students of the Pedagogical faculty in Bitola represents a new approach towards learning the mathematical contents, very interesting, playful, researchful, and motivating way of developing the thinking activities of the children and the students, but also a motive for more frequent use of the playful activities in the pedagogical practice.”*



Also we wanted to know the impressions and opinion of the students from the faculty who visited the exhibition, so we talked to some of them. Ivana Stojanovska stated:

*“This exhibition enables the children to experience a different way of learning and developing of children’s logics by researching and playing with creative materials. As a future teacher I will make sure I find a way of implementing this kind of approach in teaching.”*

Radmila Rizoska shared Ivana’s opinion and also added:

*“Through the exposition the children can do research and learn by immediate contact with the objects finding logical solutions for the mathematical problems which is the perfect approach in teaching this subject to the children. Realizing this has made me think of another more active and interesting way of teaching and gave me a new perspective as a future teacher.”*



Milena Bogojoska said:

*“This approach helps students learn better by fully engaging themselves in the activities, thus developing further their process of thinking towards finding a logical solution and an easy solution of the mathematical problem and I will make sure that this kind of approach forms a crucial part of my teaching methods and techniques in future”,.*

The activities of the project regarding the exhibitions continue in May in Italy and then in Spain in October this year and we hope that the success of the exhibition in Bitola will be repeated.



## Contact Details

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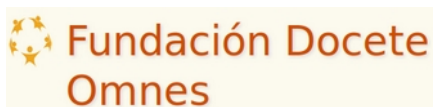
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