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## Project Partners

### Germany

BERUFSBILDENDE SCHULEN RINTELN

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

### Italy



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

### Spain



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

### Germany



<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  
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## Four Countries - Six Partners



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Over 1500 children and their teachers and parents visited our exhibitions in Skopje and Bitola

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**March 2019**

## Foreword

**Dear Reader,**

The MfM project started on October 2018 and will close on September 2020.

In our first Newsletter, we wrote, our aim is to exchange good educational and training methods and to support the daily work of kindergarten educators, instructors and teachers, to promote early childhood interest in mathematical questions and at the same time to improve the chances of integration for disadvantaged children because of their gender or their origin.

In the meantime, we have been able to collect the first experiences with our traveling exhibition in two locations in the partner country North-Macedonia.

The success surprised us:

More than 1500 visitors - children, parents and educators - visited the exhibitions in short time - and there could have been more if the capacities were larger. We must now even consider whether we can fulfill the numerous requests for a repetition.

We are very proud of this interim result.

It shows two things in our opinion:

Firstly, the interest in our project is indeed huge - not just on paper, as an academic discussion topic or 'google traffic', but in reality. Real people came in large numbers to our exhibitions.

Secondly, we have obviously succeeded in informing all target groups - children, parents, teachers and other caregivers about the project - and not just that.



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Everyone did experiments with our exhibition objects with own eyes and hands - and obviously recommended the exhibition to friends, neighbors and colleagues.

Do you know, Dear Reader, projects that have similar successes?

We hope you stay interested in the '**Maths For Minis – MfM**' project.  
Please visit our website ([www.MathsForMinis.eu](http://www.MathsForMinis.eu)) and our partners' websites.

Do you want to discuss with us?

Please do not hesitate to contact us. We will answer you immediately.

Yours sincerely,

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## Latest News

Over 1500 children and their teachers and parents visited our exhibitions in Skopje and Bitola in March 2019.

The exhibition was not only appreciated by adult and minor visitors, but was also supported by the municipalities and educational institutions, schools, libraries, exhibitors, etc. of both cities. A delegation of the project was even invited by the Mayor of the City of Bitola (second-largest city in North Macedonia) for an interview.

From a pedagogical point of view, too, the exhibition was a success - as evidenced by the many enthusiastic visitors. Due to numerous inquiries, we are currently reviewing a repeat.

We are particularly pleased, however, that it has been possible to interest children in their own research into mathematical tasks, both alone and in groups.

Gender, ethnicity, and possibly disability did not keep children from looking for common solutions to mathematical problems. We are pleased to have proven that this form of experiential learning can also make an important contribution to integration.

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Our partners, **Sumnal**, Bitola, and **LLC Macedonia**, are in the process of evaluating the extensive observation sheets. We will report in detail in the next Newsletter.



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## Interview with Prof. Beutelspacher

A few weeks ago we had the opportunity to ask Prof. Beutelspacher - the inventor and creator of our travelling exhibition - some questions about his work.

### Questions to Prof. Beutelspacher

**1. We will now be exhibiting the MiniMathematikum in different European countries. The public interest in the exhibitions seems to be quite large. Did you expect that?**

After in 2002 the ‚Mathematikum‘ was founded in Giessen as the first mathematical hands-on museum in the world, the enormous rush of visitors showed that the ‚Mathematikum‘ is indeed suitable for visitors of all ages. So I am not really surprised.



But we soon found out that young children need a special environment to benefit as much as possible from the exhibition.

A special traveling exhibition was developed for the target group of 4 to 8-year-old children. This was evaluated on a tour of Germany in 2008 at various locations. The results of the evaluation led to a complete revision of the exhibits.



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In 2009, the permanent exhibition ‚Mini-Mathematikum‘ was established at the ‚Mathematikum‘ in Giessen. The interest of the audience was again overwhelming.

Since the ‚Mini-Mathematikum‘ started as a very successful touring exhibition, it was natural to continue this practice. It is now also very popular for ten years.

We are proud that our traveling exhibition also attracts so many small and adult visitors abroad. But that does not surprise us.

## **2. What are your goals with the touring exhibition?**

Not only children from Kindergartens but also pupils of the first years of school can benefit from the visit to the ‚Mini-Mathematikum‘

For educators and teachers, there is a great opportunity to observe their children exploring the exhibits. You will be amazed at how much curiosity, commitment and social competence the children work on the experiments.

Not only children learn mathematical thinking through the use of geometric shapes and puzzles, etc. Pedagogics can also gain valuable inspiration for their own teaching practice.

The main goal is to get young people excited about math and not to frustrate them, as is often done with the usual teaching methods.

## **3. Our partners will observe special target groups of younger children how they explore the exhibits. Is there already any knowledge about it? And are you interested in these results?**

Regular experience is the following: If the children have taken in the entire exhibition in a first, mostly ‚wild‘ tour, they come to rest and focus on



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individual exhibits. It is amazing that by no means all children have the same favorite exhibit, but that the sympathies are distributed over all the exhibits.

Although the impression is inevitable that all children visiting the exhibition „profit somehow“, this impression is extremely difficult to prove it scientifically. Any hint in this direction is enormously important and can directly lead into the development of better experiments.

#### **4. Do you feel that the approach of research-based learning in early childhood education is becoming more important?**

Early childhood education is in a phase of fundamental reorientation. Today, a Kindergarten is also seen as an educational institution. A special role is played by the - appropriate to the age of the children - STEM education. For this, research-based learning is the tool of choice.

With experiments and exhibits like in the „Mini-Mathematikum“ this is possible in an outstanding way. The discussion has intensified in some countries but that is not enough. I hope that in future this knowledge is used in practice across Europe.

**Prof. Beutelspacher, we thank you for this interview.**



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## **Comparison of early childhood care systems in the partner countries**

We asked our partners how the early childhood care and education system works in their countries. Obviously similar developments have taken place in all partner countries in recent decades, which have led to similar structures, at least from a formal point of view.

Compulsory education starts in all partner countries at the age of 6. For pre-school care facilities and schools, there are mandatory training requirements for the caregivers as well as state curricula for working with the children. In addition to this useful professionalization of working with young children, unfortunately, it must also be noted that the parents are usually asked to pay for the preschool care of their children.

But read for yourself ...



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## Comparison of early childhood care systems in the partner countries

	County: Germany Name of the partner's institution: BBS Rinteln	County: Italy Name of the partner's institution: Cramars	County: Macedonia Name of the partner's institution: SUMNAL / LLC Macedonia	County: Spain Name of the partner's institution: Docete Omnes
<b>At what age does compulsory education begin in your country?</b>	At the age of six.	Compulsory schooling begins at the age of 6 when children enter primary school.	In our country the compulsory education begins with the enrollment in first grade at the age of six.	At the age of six.

<b>Are there voluntary pre-school education and care facilities? If yes, which and for which age groups?</b>	Yes, we have the following forms of support:  Day nursery for children at the age of 0-3. This form is used by 33 % of the children. Kindergardens for children at the age of 3-6.	Yes, there are.  <u>Kindergartens</u> welcome children from 2 years and 8 months up to 5 years of age. <u>Nurseries</u> welcome children from 6 month up to 3 years of age.	Yes, there are.  We have kindergartens which accept children aged from 2 years and 8 months till 5 years. We also have nurseries which accept children aged from 6 months till 3 years.	Yes, there are.  We have Kindergartens (Escuelas Infantiles) for children from birth to 6 years old. They are educational centers where the first stage of primary education is taught. The inscription in these centers is voluntary, though.
<b>Do many parents use these facilities for their children?</b>	This form is visited by nearly 95% of the children.	Almost all parents avail themselves of the help of kindergartens, while a smaller number of them use nurseries preferring to entrust children to the care of grandparents or nannies.	Almost all of the parents use the kindergartens, while the nurseries are used by smaller number of parents because they prefer to leave their children at the care of their grandparents. Some of them hire nannies.	There are other centers where kids are cared (nurseries and playhouses) till the age of three maximum. They don't offer education services and they are not considered as education centers. 37,9% of kids under 3 years they are schooled in Spain. 53% of children under 3 use any of the facilities available.
<b>Is the participation free of charge?</b>	The calculation of the charges depends on the federal state the daily care takes place.	Depends on the type of school. State kindergartens are free while private kindergartens are charge. Private nurseries are paid for, while municipal nurseries provide for the payment of a fee established, on the basis of the income of the families.	The participation in the state kindergartens is free, while the state nurseries provide care for a free established, based on the income of the parents. The private kindergartens are paid for. There are also Early childhood development centers. Some of them are paid for, and some are free	As an average, only 6% of school places available are completely free of charge, but the figures varies from one "Comunidad autónoma" to another. Anyway, the fee is calculated accordingly to the economical situation of the families.



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<b>Are these facilities operated privately or by the state?</b>	The state has the duty to take care for an adequate offer of facilities. The facilities themselves are operated privately, churchy, by social welfare and subsidiary by the state.	There are both private and state kindergartens. The nurseries school are largely private but there are also some municipal ones, that ask for an economic contribution based on the income of the families.	The state facilities are operated by the state, and the private ones privately. The nurseries are mostly private, but there are some operated by the municipality where parents give some economic contribution based on their income.	There are state and private kindergartens. Nurseries and Playhouses are mainly private, but many of them are managed by the government of the Comunidad Autónoma and/or of the municipalities.
<b>Do these facilities have full-time staff with fixed contracts?</b>	This is the common practice.	Partly. Most of the staff have permanent and full-time contracts. But there is a part of staff that works with monthly or annual contracts. A small part benefits from the part-time.	Most of them have full time staff with fixed contracts, but there are also some which work with monthly or annual contracts. There are also part-time employees.	In centers managed by public bodies, that type of contracts are the most usual, but even in those centers, 28% of interim teachers are laid off in holidays (and after them they are hired again).
<b>Does the staff need to have certain qualifications? If yes, which?</b>	Yes, most of the staff has the following qualifications:  Sozialpädagogischer Assistent (minimum) Erzieher Heilerziehungspfleger Heilpädagoge Sozialpädagoge	Since 2002 teachers must have a degree in training science (Scienze della Formazione) in order to be qualified to teach. Before 2002 it was necessary to have a high school diploma (Magistral School or Psycho-pedagogical High School)	Yes.  The employees in the kindergartens have to have a degree in teaching preschool and kindergarten children obtained in some of our pedagogical faculties, or a license to work with children of the specific age.	Yes, in kindergartens a Teaching Degree (Magisterio) or High School diploma in Infant Education (Técnico Superior en Educación Infantil) are needed.



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<b>Do these facilities have to meet certain equipment standards? If yes, which?</b>	This depends on the federal state. For lower saxony we have the following standards: KiTaG 1. and 2. DVO.	Yes, as far as kindergartens are concerned.  Children leaving kindergartens must have the necessary skills and pre-requisition to enter primary school.	Yes, they have to meet the equipment standards according to the Law for protection of the children under the supervision of the Ministry for labor and social issues.	Yes. There is a special regulation for each kind of centre, that can vary from one Comunidad Autónoma to another.
<b>Is there a curriculum that describes playful learning in mathematics (Age of four to eight years)? If yes, how is this implemented in children's facilities?</b>	This depends on the federal state. To lower saxony applies:  Orientierungsplan für Bildung und Erziehung in niedersächsischen Kindertageseinrichtungen.	Yes, there is.  Italian teachers refer to European curricula and national indications to plan structured activities in all disciplinary fields. Among the activities there are also recreational activities (playful learning) and laboratory.	Yes, there is.  The teachers refer to European curricula and national indications to plan and implement the activities.	In Spain educational system is decentralized, so each Comunidad Autónoma has its own curriculum.
<b>Are there any approaches for this age group that focus on researching learning and thus on children's own activity?</b>	Yes, for example: Co-construction Metacognition	Yes, there are.  Most of the proposed activities have as their main aim the promotion of the learning of the children through a direct involvement of the children in the different activities.	Yes. Most of the activities require direct involvement of the children.	Yes, there are, but again there's no unified model for the whole country.



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<b>Is there a collection of educational models or games that support learning in the field of mathematics? If so, how is this used?</b>	There are several materials and games that refer to the fields of mathematics.	Not officially. Generally, games and activities are designed and prepared by the individual teacher or by the team of teachers of the class/ the school/ college teachers.  They are used during the lessons.	There is no official collection. Mostly the activities are planned individually by the teachers and implemented during the lesson.	Not officially. Teachers are, in general, free to implement their own activities and even assessment methods. Every educational centre has a job position called "Jefe de Estudios" who is responsible for organising the teaching methods.
<b>Is there a debate about strengthening STEM (science, technology, engineering, mathematics )competencies and are initiatives taken? If yes, which?</b>	Yes, we call it MINT (mathematics, informatics, natural science, technology). The debate led to several projects, foundations, etc. that finance the early childhood education in these ranges.	Not that I know of.	There have been some attempts to promote and strengthen the STEM competences in the educational facilities. There is a STEM academy in our country and at the Educational conferences I have visited, this question has been discussed and promoted. I am not aware if it is implemented in the regular educational system.	Yes, and there are many educational centers (mainly private ones) that offer study plans addressed to improving STEM competences.



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