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Short-Term Curriculum



Co-funded by the
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of the European Union



Short-Term Curriculum

...is aiming to introduce outdoor mathematics with MathCityMap to Primary and Secondary level teachers. It takes into special account the MaSCE³ features.

Hereby, teachers get in touch with an innovative theory-based approach of teaching outdoor mathematics supported by technology.

The teachers achieve the following skills and competences:

- **Knowledge about outdoor education and math trails**
- **Use of digital tools and creation of learning environments**
- **Analysis and development of (outdoor) mathematics tasks with regards to relevant characteristics and the curriculum**
- **Planning, conduct and reflection of an outdoor lesson with students**
- **Peer- and expert review of math trails tasks**

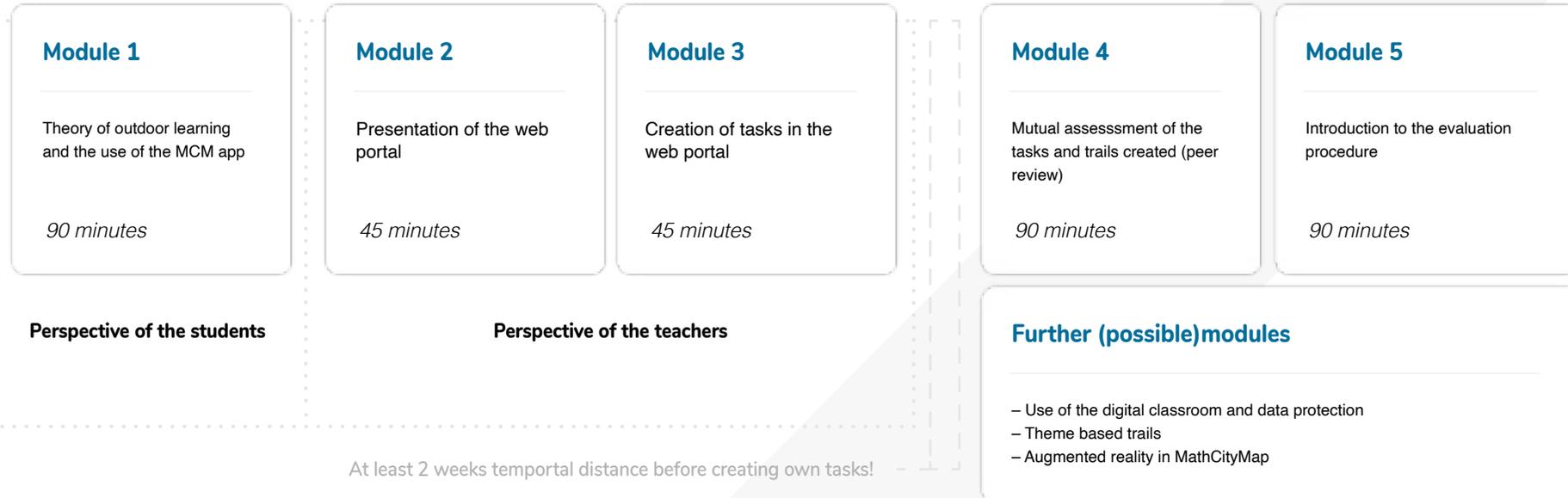
Note: All materials relevant for the Short-Term Curriculum can be downloaded from the [website](#). In addition, we provide a detailed overview in all the partners' languages, as well as the relevant literature.

Structure



IO7 is connected to several MaSCE³ Intellectual Outputs:

- Module 1 & 2 focus in particular on IO1 (Digital Classroom)
- Module 3 focuses in particular on IO2 (Task Formats)
- Module 4 gives a reference to IO4 and IO5 (Theme-based Trails)



Prerequisites



MaSCE³

Theoretical background

- Outdoor learning
- Modelling
- Math trails

MathCityMap system

- Web portal
- App

MathCityMap in class

- Preparation in the classroom
- Implementation in class
- Digital classroom

MathCityMap as a participatory project

- Own tasks & math trails
- Teacher trainings

15/02/2022 Teacher Training in XXX 2

MaSCE³

MathCityMap idea: App

- **Trails are downloaded to the smartphone**
- The MathCityMap app is free of charge and advertisements and respects personal data protection (GDPR)
- The app is available for Android & iOS

15/02/2022 Teacher Training in XXX 36

MaSCE³

The MCM Review Process

18/02/2022 Teacher Training in XXX 21



- 1 Set of measurement tools for participants (folding ruler, measuring tape etc.)
- 2 Prepared math trail close to the training's location
- 3 Adapted slides that are available on the [website](#)

Aims of the training

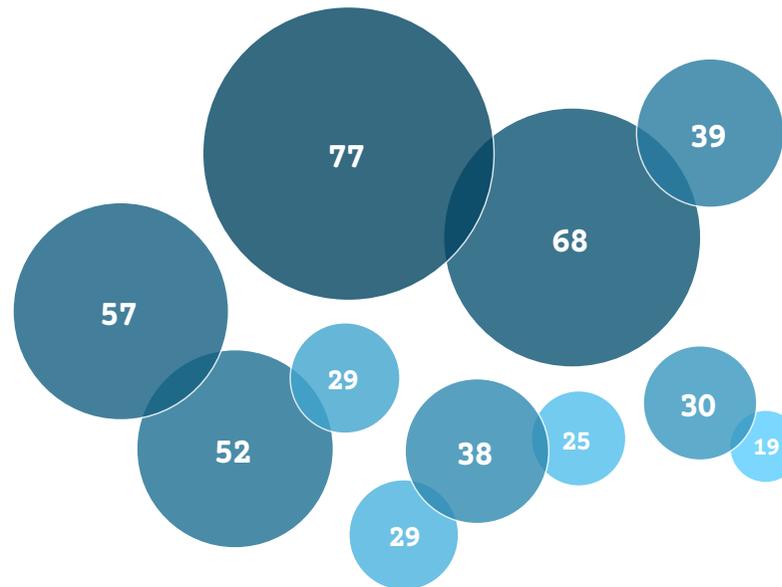
Teachers get in touch with an innovative theory-based approach of teaching outdoor mathematics supported by technology. Hereby the teachers achieve the following skills and competences:

- Knowledge about outdoor education and math trails
- Use of digital tools and creation of learning environments
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Digital Tools Usage

With a user survey being related to IO7, we invited all teachers and MCM users to answer questions about their use of Digital Tools, and in particular MathCityMap and the MaSCE³ features.

148 users from 16 different countries answered the online questionnaire with 36 closed and opened questions.



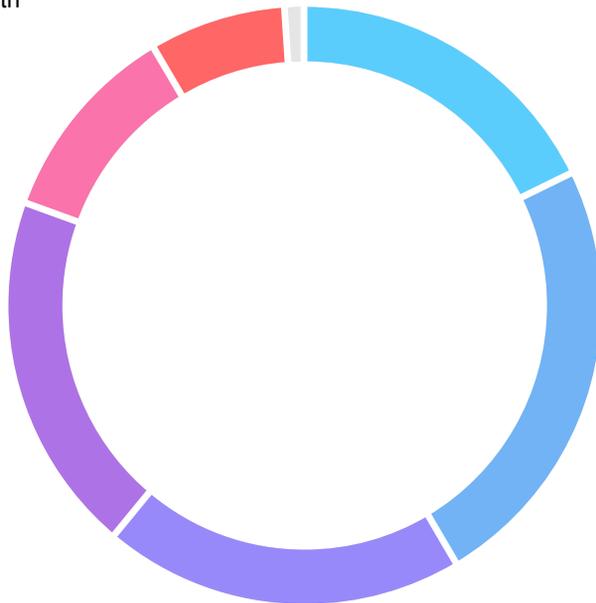
Requirements for Digital Tools

free to use	77.4%
easy to get	68.5%
pupils have fun	57.3%
positive experience	52.4%
material available	39.5%
easy familiarisation	38.7%
privacy protection	30.6%
relevant for pupils	29.0%
effectiveness	29.0%
reduction of workload	25.0%
design	19.4%

Digital Tools Usage

Frequency

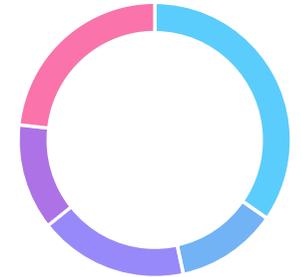
■ 17.8	Every lesson	■ 7.6	Once a year
■ 23.7	Daily	■ 0.9	< Once a year
■ 19.5	Twice a week		
■ 19.5	Once a week		
■ 11.0	Once a month		



MathCityMap Usage

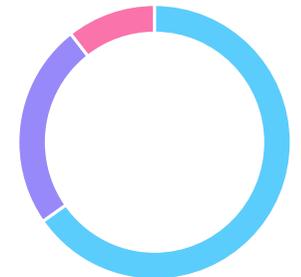
Own Task Creation

Yes, by myself	49.2	■
Yes, with colleagues	17.7	■
Yes, with students	25.0	■
No, but planned for the future	17.0	■
No	33.1	■



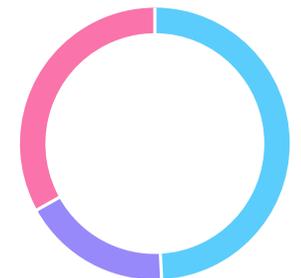
Own Math Trail Run with Class

Yes	65.3	■
No, but planned for the future	24.2	■
No	10.5	■



Own Use of Digital Classroom

Yes	49.2	■
No, but planned for the future	17.7	■
No	33.1	■



Usability

MathCityMap and MaSCE³ Features

1 – completely disagree

5 – completely agree

* Please note that the feature was recently implemented so that most of the users could not know about it. With the newest developments in IO3, and especially the AR tutorial, we assume that the agreement will increase significantly.

Item	Mean Value
I can orientate myself in the web portal	4.3
There is enough material to learn the use of MCM on your own.	4.1
Creating tasks is intuitive	4.0
Creating trails is intuitive	4.0
The interaction between web portal and app was easy to understand.	4.0
The pdf version of a trail is useful.	4.1
I know how to create and observe a Digital Classroom (IO1).	3.4
I know how to create task with different answer formats and support tasks (IO2).	3.2
I know how to integrated AR elements in MCM (IO3).	2.8*
I know that there are theme-based trails available to get rich task ideas (IO4/5).	3.6
With the participation in the MOOC, it was easy for me to learn how MCM works (IO6).	4.3
With the participation in a teacher training, it was easy for me to learn how MCM works (IO7).	4.1

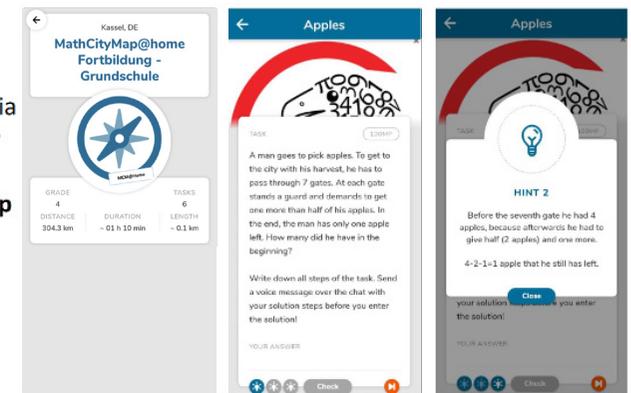
MathCityMap@home

In the context of the Covid-19 pandemic, we developed a use case of MathCityMap for distance learning.

MathCityMap@home still uses the original concept and the two components of MCM. As in the out-of-school context, teachers create tasks and math trails in the sense of mathematical learning paths for their students in the web portal. The students download this path to their smartphone and solve the tasks using the hints and automatic solution checking. In contrast to the original concept, however, the tasks of MathCityMap@home are set to be solved not only on site but also at home. As for the MathCityMap Short-Term Curriculum, the corresponding slides can be downloaded from the [website](#) in all partners' languages.

The basic idea of MCM@home App usage

- The trails are downloaded onto the smartphone.
- The task texts are accessed via the smartphone, and/ or one uses a paper guide.
- **Help or hints can be called up via the app.**



MCM@home – Designing distance learning

IO7: Short-Term Curriculum

 masce.eu / mathcitymap.eu/portal

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