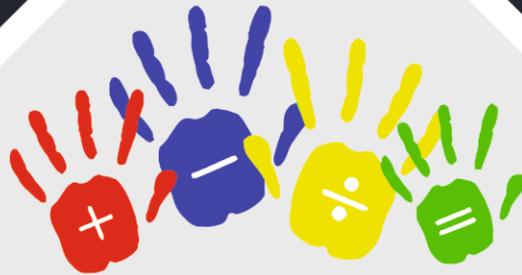




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FAMILIES COUNT

Family Learning of Maths through Digital Tools
FAMILIES COUNT

2019-1-UK01-KA201-062073

PURPOSE OF HANDBOOK

FAMILIES COUNT Pedagogical Handbook aims to provide in depth information, basic concepts, definitions and innovative methodological approaches on the development of competences in Maths through Family Learning. This product will be developed on the basis of the theoretical and methodological framework provided by the training curriculum.

This Pedagogical Handbook aims to be a useful tool, complementary with other practical products of the project, providing a deep insight including:

- Theoretical introduction, approaches and general notions on the development of competences in Maths through Family Learning.
- Conceptual knowledge and methodological support related to the acquisition of skills and competences in Maths through innovative Family Learning teaching methods based on Digital Tools.
- Innovative pedagogical approaches and assessment methodologies.
- Cutting-edge practices, successful and inspiring experiences.
- Useful information, additional readings and recommendations.

The expected impact of this output is to provide Family Learning practitioners, tutors and headteachers, at national and European level, with a useful tool for theoretical support, by means of providing innovative pedagogical and methodological approaches to promote the acquisition of skills and competences in Maths through innovative Family Learning teaching methods based on Digital Tools.



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SPAIN

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TRAINING CURRICULUM ON FAMILY LEARNING OF MATHS

The Training Curriculum aims to define and map the competencies, knowledge and skills that practitioners, tutors and headteachers need to use to support students and parents from disadvantaged families to acquire and improve their competencies in maths.

It will facilitate the recognition of competencies in different countries, supporting the mobility of practitioners, tutors and headteachers across Europe and promoting lifelong learning, skills certification and training credit.

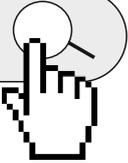
The process implied the Partners contribution as following:

- setting up of a Theoretical Framework analysing European and national qualification frameworks;
- definition of the Competence Framework required and creation of Units of Learning Outcomes;
- development of Learning Outcomes expressed in term of Knowledge, Skills and Competences (Responsibility and Autonomy).

The identification and definition of Units of Learning Outcomes has been designed following the EQF and ECVET guidelines and principles. The present Training Curriculum is an Open Educational Resource (OER) available in English and all the languages of the consortium and accessible through the project website.

FAMILIES COUNT Training Curriculum is aimed at EQF level 4

Qualification level	Knowledge	Skills	Responsibility & Autonomy
Level 4	Factual and theoretical knowledge in broad contexts within a field of work or study.	A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study.	Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change. Supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study

<https://families-count.org> 



UNIT 1

Role of Parent as Educator and Early Exposure of Children to Maths

Socialization is a process in which both the family and the educational entities have to coordinate in the same way. Moreover, if we are dealing with disadvantaged families, this coordination is even more necessary to support each other and to solve the needs in different areas of daily life. In this way, from these social agents, we can help to promote the adequate development of the youngest ones.



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UNIT 2

The Family Learning Pedagogical Approach

Pedagogical approach means the broad principles and methods of education used in teaching practice. In other words, how teaching takes place is directly related to pedagogical approaches and practices. Effective pedagogical approaches and practices structure the learning environment and increase positive interactions with activities suitable for learner's age and developmental process. These positive interactions, which have a very strong and lasting effect on the development of the learner, also support the cognitive, social and language development of learners.



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UNIT 3

Practical Application of Maths in a Family Learning Context

The aim of Families Count Learning Unit 3 is to look at how mathematics, numeracy and mental arithmetic can be identified and applied in a family learning situation in order to bring about robust financial order, good household management as well as short-term and long-term financial benefits.



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UNIT 4

Using Edtech to Reach Mathematics Competencies in a Family Learning Contexts

Unit 4 covers how Edtech **some mes** referred to as Edutech can teach Maths competencies in Family Learning contexts. It will cover what Edtech is, its benefits in the teaching of Mathematics competencies in Family Learning context, how Edtech is changing where and how we learn and offering new opportunities for learning mathematics in the home. It will also provide a sample lesson plan for incorporating one of the FAMILIES COUNT Edtech Digital Applications into a lesson plan for Family Learning.



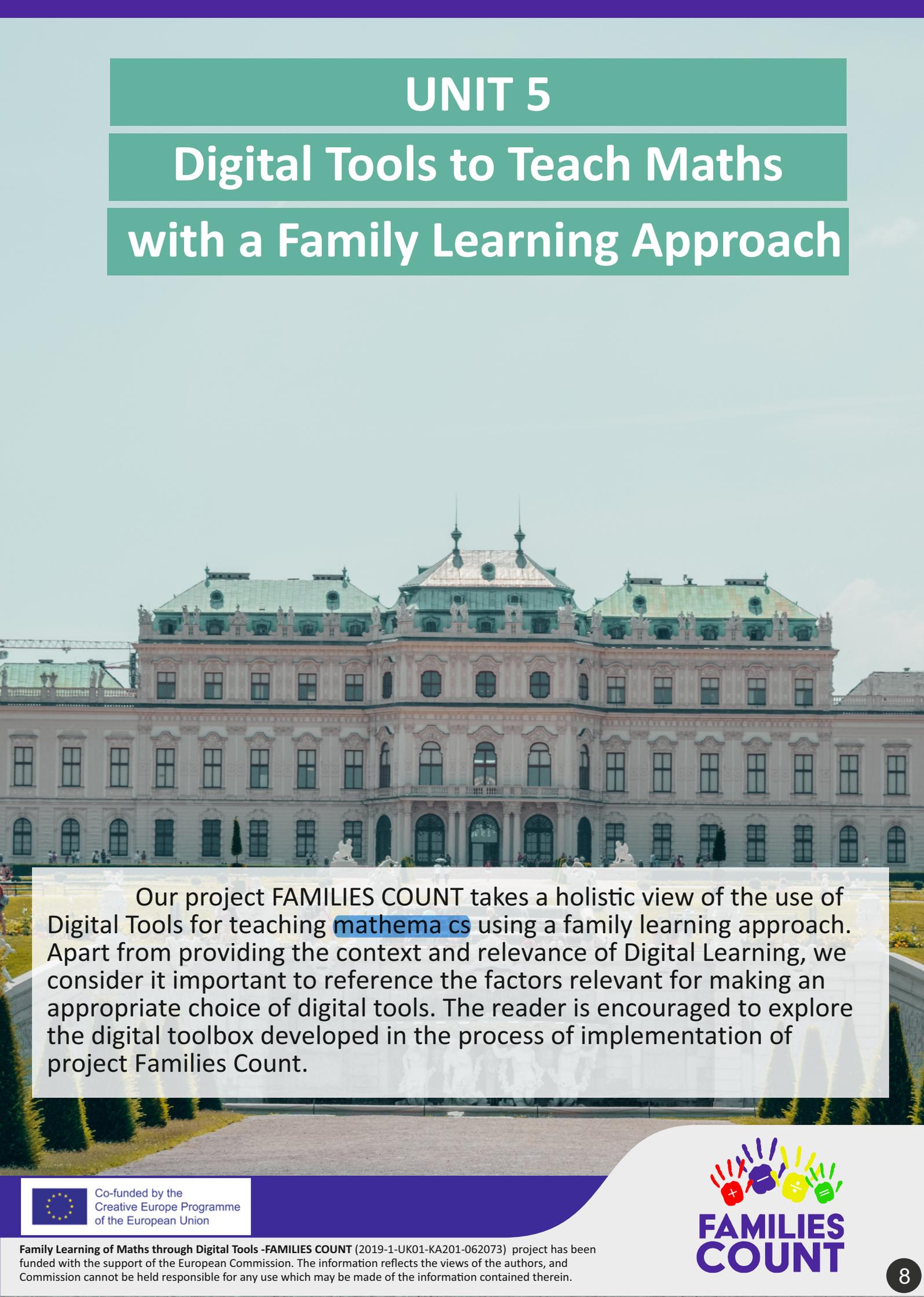
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UNIT 5

Digital Tools to Teach Maths

with a Family Learning Approach



Our project FAMILIES COUNT takes a holistic view of the use of Digital Tools for teaching **mathematics** using a family learning approach. Apart from providing the context and relevance of Digital Learning, we consider it important to reference the factors relevant for making an appropriate choice of digital tools. The reader is encouraged to explore the digital toolbox developed in the process of implementation of project Families Count.



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CONCLUSION

We have reported our family learning of maths model as an effective pedagogy engaging children and parents through digital learning. The outcomes of this development, so far, are overwhelming from the following units:

Unit 1. Role of Parent as Educator and early exposure of children to maths

This introductory unit aims to give a general overview of the role of the parents in the children's education (in strict connection with the school) and to explain the positive multiple effects of early exposure of the children to maths.

Upon completion of this unit, the user will be able to:

- organize training courses with disadvantaged, multicultural families;
- adapt contents to different people age range;
- master intercultural, facilitation and inclusive pedagogical strategies;
- develop contents related to the role of parents in scholar education of their children;
- develop contents related to the multiple effects of children's early exposure to maths.

Unit 2. The Family Learning pedagogical approach

The purpose of this unit is to explain the pedagogical approaches in family learning for the use of digital tools in mathematics teaching through teachers/trainers, appropriate environment, children and family members, and to recommend the most appropriate methods to be created through these approaches.

The main performance criteria of pedagogical approaches in family learning are; the socio-economic levels of families, the age groups, their being readiness, curriculum content, and the skills of the instructors to master the curriculum and evaluation criteria.

Upon completion of this unit, the user will be able to:

- strengthen the pedagogical approach in Family learning of Math
- acquire knowledge of educationally powerful connections with families
- understand the main pedagogical keys of family learning
- gain the knowledge of communities that support such family learning programmes.
- compare classic and modern approaches in terms of technology using.
- gain practical experience in getting appropriate approaches.

Unit 3. Practical application of Maths in a Family Learning context

The aim of Unit 3 is to look at how mathematics, numeracy and mental arithmetic can be identified and applied in a family learning situation in order to bring about robust financial order, good household management as well as short-term and long-term financial benefits.

Key performance criteria will be based around the ability to self-identify against given skills, knowledge and responsibilities and autonomies and against SMART targets based against initial diagnostic tools and the ability to identify key areas for learning and improvement through planning, doing and reviewing.

Unit 4. Using Edtech to teach maths competencies in transgenerational learning contexts

The aim of this unit is to familiarize the learner with what educational technology (Edtech) is, how and why it can be applied to teach maths competencies in a transgenerational learning context.



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Upon completion of this unit, the user will be able to:

- define what Edtech is;
- define Edtech in the context of teaching math competencies;
- define Edtech in terms of the teaching of math competencies in transgenerational learning contexts.

Unit 5. Digital Tools to teach Maths with a Family Learning Approach

The aim of Unit 5 is to familiarize with different types of digital tools to teach mathematics with a Family Learning Approach, selection of appropriate tools and their use to develop understanding, stimulate interest, and increase proficiency in mathematics by exploring and identifying mathematical concepts and relationships.

Key performance criteria of digital tools for learning mathematics will be to ensure that the tool is mathematically sound and faithful to the underlying mathematical properties. It will relate directly to ease of using the digital tool, its stability and performance as well as their open source licensing.

Upon completion of this unit, the user will be able to:

- acquire knowledge of various types of digital tools relevant to mathematics
- evaluate impacts of digital tools on teaching and learning of mathematics
- use digital tools in mathematics to achieve learning goals
- gain understanding of using technology for solving mathematical functions
- gain practical experience in the use of selected digital tools for mathematics

FAMILIES COUNT will have a direct impact on target beneficiaries, improving their competencies in maths and their participation and engagement in the school systems and in the target groups of users, improving the pedagogical methods to teach maths to students and parents from disadvantaged families. The project will also improve the digital skills of both groups of users and beneficiaries thanks to the innovative digital tools created to facilitate the teaching learning of maths.

Schools and other social entities and external stakeholders will count with new methods and instruments to facilitate their collaboration for the benefit of disadvantaged families in their communities. The long-term impact envisaged is the strength of the School system in Europe with new forms of tackling early school leaving and disadvantage.

RECOMMENDATIONS

For Educational Institutions

More research on methodology can support stronger provision and an understanding of why and how a family learning approach should be used in maths learning.

Educational institutions can make sure that the design of teacher-training includes new technologies and digital methods that they will need in the maths classroom.

Success in digital transformation in educational institutions can be achieved by creating a teacher- and student-friendly learning environment. Therefore, students, parents, teachers and administrators should contribute and be involved in all stages of the transformation process.

An official social network where all families can come together and represent themselves can be developed

Educational institutions can plan events, various courses, information seminars, which can make the school a learning environment for parents as well



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For Educational Policy in Local and National Governments

Governments can make “best practices” and “digital environments” in family learning of maths available to parents and schools through new and transformative education policies which are effectively and widely communicated.

More responsibility can be given to local administrators and units in many education systems who know their local areas better, to promote family learning.

Policies can be created to encourage private or government organizations to create software/online learning platforms where teachers can create their own maths games with simple computer skills.

The government should regularly review the funding for and supply of family learning of maths and digital skills.

There should be a joint national forum for family learning to support high-quality and innovative practice, and appropriate policy, advocacy, research and development.

Family learning can be improved through greater cohesion from the strategic level to the operational level with the support of a national framework

For Social Partners and Key Stakeholders

The development, coordination and inclusion of digital tools in the maths curriculum must be done to high educational standards which are also relevant to family life e.g. financial literacy and money management.

Social partners and stakeholders supporting family learning need coordination, communication and cooperation with schools and universities to ensure that maths learning is made accessible using digital tools in a family friendly way..

For European Institutions

The Family learning of Maths using digital tools is in line with the Digital Education Action Plan 2021-2027 of the European Commission by supporting the provision of basic digital skills and competences from an early age within families

Funding for family learning programmes need to be built into drivers for change to ensure successful outcomes for families

Support strategic partnerships for family learning and digital tools for learning math at an international level.

The Family learning of Maths using digital tools is in line with the Digital Education Action Plan 2021-2027 of the European Commission by supporting the provision of basic digital skills and competences from an early age within families.

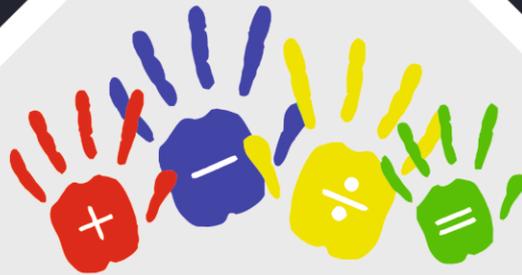


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