Learn STEM

*Innovative Model
of learning STEM
in secondary schools*

School Education
ERASMUS+

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Cooperation partnerships in
school education

LearnSTEM

4 best practices of teaching STEM in Italy

Partner name: EURO-NET

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Best practices in teaching STEM in Italy

The best practices related to STEM teaching in Italy can be divided into our categories:

1. Initiatives to encourage young students to study STEM disciplines;
2. Upskilling and reskilling initiatives;
3. Initiatives to promote the development of STEM women;
4. Initiatives to foster the employment of female STEM professionals.

1st best practice: MATABI'

- Best practice for teaching STEM in Italy.
- Matabì is a project which aims to foster math learning through an innovative learning methodology and while having fun.
- It encourages the acquisition of visual-spatial skills using building bricks.
- The project is addressed to primary classes (3rd and 4th).
- Background: learning mathematics is scary for students and results are not always good → by the age 15, 1 in 2 Italian students do not have basic math skills → girls are affected more than boys, and this results in a gender gap that grows over time.

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1st best practice: MATABI'

- Thanks to the project, students are given a personal kit consisting of 14 LEGO® DUPLO® bricks that can be used with the teacher's guidance to solve math problems and to familiarize with spatial skills through play.

- Teachers will be given a training on exercises and activities to use the bricks. 5 training modules for teachers (lasting 2 hours each).

- Then, each class will take part in 4 workshops to learn about the project and the methodology.

- Website: https://matabi.it/

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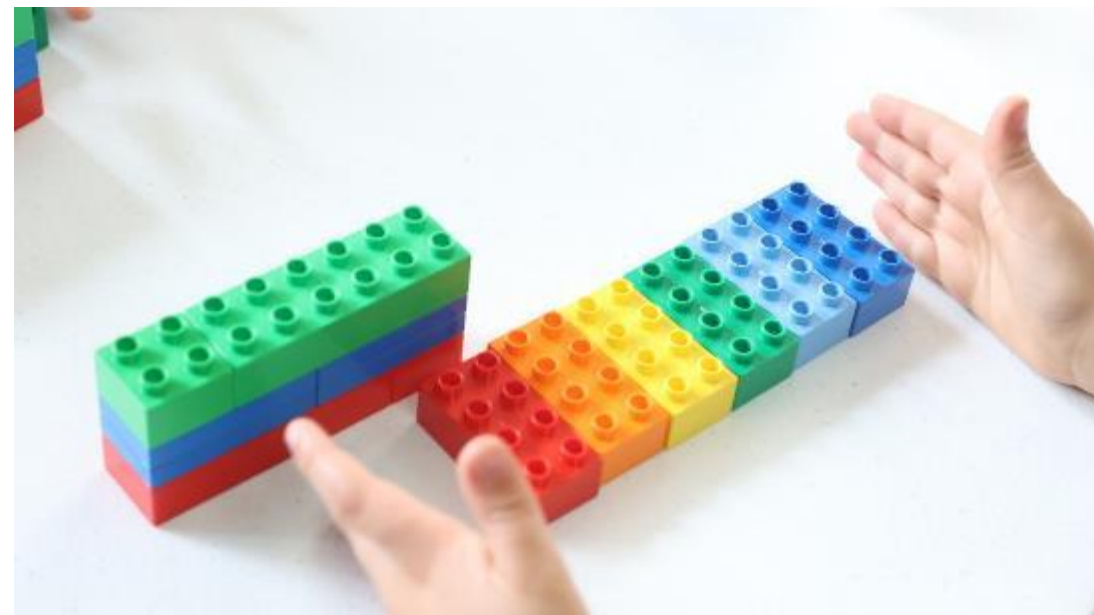
2ⁿᵈ best practice: Code Like A Girl
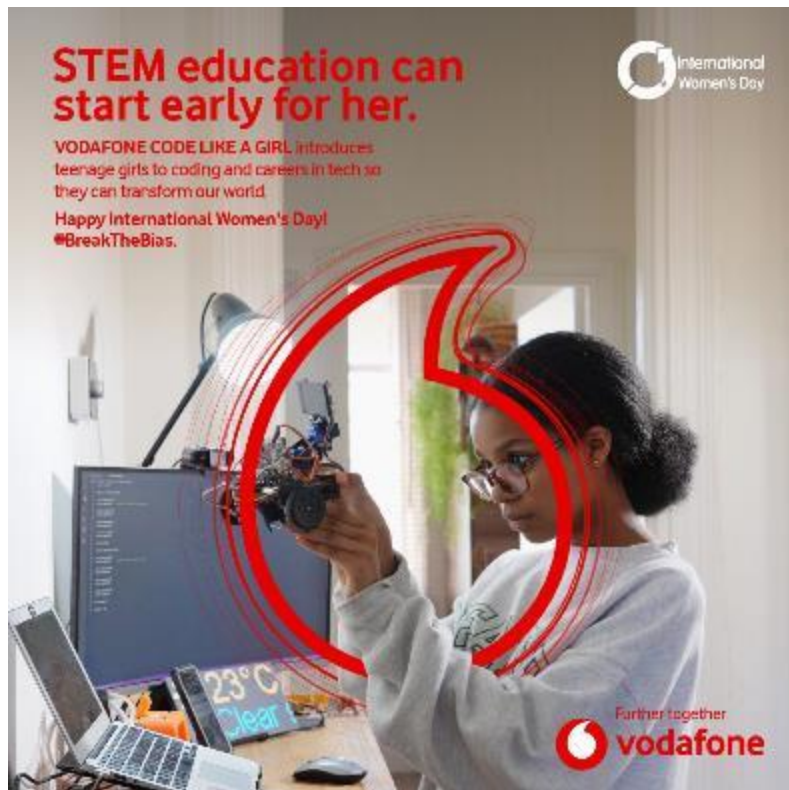
- Best practice in Italy which promotes STEM careers, aims at reducing gender gaps by empowering and increasing young females' technological skills and aims at breaking down gender stereotypes.

- Global initiative by Vodafone launched in 2017 in 26 countries, including Italy, in partnership with "Code First: Girls".

- Vodafone has partnered up with local schools to attract female participants to the project.

- Background: programming is one of the most in-demand skills → however, girls fall behind in such sector which is mostly dominated by men.

2ⁿᵈ best practice: Code Like A Girl

- The programme is addressed at young girls aged between 14 and 18, regardless of their skills but interested in coding. However, preference is given to girls from underprivileged backgrounds.

- The initiative aims at stimulating girls' interest in STEM disciplines, at tackling low representation of girls in STEM education, at getting more girls into STEM careers.

- The programme offers a course on basic and introductory web development skills and knowledge of programming languages (HTML, CSS, Github, Javascript). 5-day free training during which participants are given tasks to design and develop a website.

- Website: https://www.vodafone.com/vodafone-foundation/about-vodafone-foundation

3rd best practice: School4Life 2.0

- Best practice in Italy for the joint engagement of enterprises in helping students shape their future in STEM careers and avoid school dropouts.

- School4Life 2.0 is a project launched in 2022 and based on the cooperation and support of 11 big Italian enterprises.

- The initiative targets middle and high school students from territories with high school dropout rates, and also involves teachers, families and businesses.

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3rd best practice: School4Life 2.0

- The project aims at fostering young people's interest in STEM subjects through school and career guidance, at strengthening the motivation to study and at passing on useful knowledge to make successful choices.

- The project also aims at promoting the approach of female students to STEM subjects and skills, since nowadays in Italy these skills are mainly of the male universe.

- The project is based on the "learning by doing" methodology through workshops and meetings with STEM experts in order to make students protagonists of learning and hear about testimonies of STEM careers.

- Website: https://www.elis.org/semestri/sistema-scuola-impresa/school4life/

4th best practice: NERD? Project

- Best practice in Italy for the added value in the STEM field in terms of empowerment and training of young girls in computer science.
- The project "NERD? (Isn't it stuff for women?)" has been launched in 2012 by IBM Italy Foundation.
- The project targets female secondary school students and aims at spreading the passion for computer science and guiding females' university choices.

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4th best practice: NERD? Project

- Since 2012, over 20.000 young female students of 1250 secondary schools in Italy have taken part in the project → as a result, considerable increases in enrollment of girls in the STEM faculties in Italian universities have been recorded, from a 15% to peaks of 35%.

- The main goals of the initiative are: overcome gender stereotypes; increase the number of female students enrolling STEM majors; reduce the gender gap in the technological professions; find new paradigms to engage females; demonstrate the highly creative nature of computer science.

- The project organizes workshops and training sessions during which girls can learn how to program mobile apps without the need for any prior skills, how to use the IBM Cloud platform, how to work with the Artificial Intelligence, how to build a virtual assistant on one of the topics of the 2030 United Nations Agenda for Sustainable Development.

4th best practice: NERD? Project

- During the workshops, participants are also given the opportunity to meet and talk with expert women working in STEM.
- Participants will work in teams to create a virtual assistant, whose creation will be judged by the IBM team and the winner will be awarded of an additional 3-day workshop on STEM.
- The project is based on the "learning by doing" methodology: fewer theoretical notions are given, and participants learn by being plunged into practice to develop an app and a chatbot.
- In addition to the workshops, the project offers for free the "SkillsBuild" platform where learners can find courses on innovative technologies, artificial intelligence, cloud, quantum computing and blockchain.
- Website: https://progettonerd.my.canva.site/.

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Contact

EURO-NET
Europe Direct Basilicata Center
Vicolo Luigi Lavista 3
85100 Potenza (PZ) Italy
+39 0971 23300
info@euro-net.eu

www.euro-net.eu

Power Point presentation by Veronica Summa
Junior Project Manager at EURO-NET
E-Mail: summaveronica@libero.it

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