



TanglIn

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Why TanglIn project?

TanglIn aims to produce and deliver a set of educational resources and materials to promote and support the effective use of tangible programming concepts by teachers in daily classrooms (at primary level schools) while teaching STEM-based subjects.

These resources will enable teachers to introduce tangible programming concepts and STEM-based subjects, to young students, in a fun, engaging, pedagogical and inclusive way. Even teachers with no background in using ICT, neither digital-based tools, will be able to promote and teach tangible programming concepts, with support of physical interfaces (e.g.: blocks commanding a simple robot).

What is tangible programming?

Tangible programming is a language similar to text or visual programming languages, but instead of using words/pictures on a computer screen, it uses physical objects to represent different programming elements, commands, and flow-of-control structures.

- Tangible programming uses physical objects to teach children programming concepts;
- Turning programming into an activity that is accessible to the hands and minds of young children;
- Introducing programming concepts, promoting cognitive and spatial development;
- Promoting soft skills in young students, such as teamwork, troubleshooting and critical thinking;
- Promoting group work for a common goal strengthening team work and communication skills, independently of each one gender, social background, etc.

Expected results

IO1-Using programming concepts to stimulate learning of STEM subjects at primary school levels → report providing guidance to schools and researchers on how can tangible programming resources and concepts be used in the classrooms with young students, to foster their motivation for STEM-based subjects and to promote students' inclusion.

IO2-TanglIn toolbox of resources → toolbox for school teachers and managers composed by a set of activities to be implemented in daily classes and a teachers' guide manual. The toolbox will include specific activities or lessons covering different STEM-related topics at all levels of the primary education level.

IO3-TanglIn Teachers training package → detailed training package to train teachers on how to use the resources developed, mainly the toolbox of educational activities and the teachers' guide, and also on how they can further develop new activities or lessons in other topics.

Furthermore, the project will include a European train the teachers course; local peer-learning actions at schools' level; pilot of the resources with students and four local multiplier events.



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Join us! Share your vision and needs

Do you aim to join us, collaborating in this project for the development of innovative educational resources to promote tangible programming concepts at primary school level?

We are launching a European online open questionnaire focusing on knowledge and opinions that teachers have about the usage of Tangible Programming to teach STEM related contents at primary school level. We would be happy if could participate by answering to que questionnaire [available here](#). This will take you only 10 to 12 minutes of your time.

Before answering to the questionnaire, you can get familiar with the concept of tangible programming by assisting this short video produced by the consortium and that explains briefly the concepts. Thank you for taking part in this research. Your inputs are important for our future outcomes, which will be designed to address your needs and interests.

Preliminary findings

An initial desk research performed in the partners countries allowed us to collect promising data about topics and lessons of STEM-based topics where innovative tangible programming concepts can be introduced to students while teaching the core subjects. The following topics where tangible programming concepts are:

- **Numbers and operations**, with activities and exercises to explore the properties of numbers: commutative, associative, and distributive and sequences such as prime numbers, Fibonacci numbers etc.
- **Geography and society**, for example with activities and exercises to identify the main institutions and government bodies in the European Union, learn about the global political and natural map, about the main deserts, oceans, mountains etc.
- Elements of **geometry** with activities and exercises to learn about the concepts of internal and external angles of polygons, to apply trigonometry concepts to determine distances and angles. etc.
- **Men and Nature** with activities and exercises to explore the Solar system, the physical properties of matter, learn about the natural resources such as the water cycle and energy sources, etc.

Consortium



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