



What is new?

Since March and until the end of the school year, several schools are implementing the sessions for pilot testing of the TangIn toolbox!

The aim of this phase is to test the efficiency of the exercises and activities to promote tangible programming concepts and tools in primary schools, while delivering STEM-based subjects such as mathematics or sciences.

A total of 32 European teachers are engaged in testing those activities with their students, enabling their fine tuning and improvement in the future.

What is the toolbox about?

The toolbox is a resource for primary school teachers, composed mainly by a set of exercises and activities and a teacher's handbook, enabling teachers to deliver STEM-based topics using tangible programming concepts and tools. The key benefits of these innovative resources can be summarized as follows:

- Ready to use lesson plans.
- Fun and attractive lessons for students.
- Stimulates students' interest for science, mathematics and technology.
- Introduces concepts of tangible programming and computational thinking.
- Fosters students collaborative work and communication.
- Facilitates student's inclusion.

Often teachers do ask if they need to have special programming skills to use the toolbox resources or to use concepts of tangible programming in their classes. The answer is NO! The toolbox of resources aims to stimulate the use of tangible programming, enabling the development of programming skills and reasonable thinking competences using physical objects. As such, neither teachers nor students will have to possess digital skills or access to computers to use these educational resources. The programming concepts are introduced using physical objects such as a robot, block and a grid.

A **Teachers Handbook** is provided to support and guide teachers. The guide contains different sections that aim to present in an easy to understand way basic concepts (e.g. What is tangible programming?), the structure of the exercises and activities, a summary of each one and some tips for its implementation. The largest part of the handbook is dedicated to explaining and introduce the use of the physical objects for the programming (robot and programming blocks), presenting the technical features of the tools, as well as the main functionalities and the basic instructions for programming.



Educational Lesson Plans

A set of **Educational Lesson Plans (exercises and activities)** covering STEM-based subjects for primary education level, integrated with tangible programming concepts and resources is presented. These plans shall not be considered as immutable and tight as teachers shall have the freedom to adapt them to the dynamics of the class and explore what they consider more relevant.

There are **two introductory exercises and activities** aimed at:

- Presenting Computational Thinking, Programming and Robotics by using commands and role play dynamics.
- Explaining how to use the robot and the blocks to programme the robot, including the functions of each block.

And, **19 thematic exercises and activities** where each one:

- Addresses different primary school levels and students age.
- Covers different STEM-based subjects.
- Promotes the use of tangible programming concepts.

	Exercises and activities																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Age group																					
5-12	x	x						x						x		x					
6-10			x		x																
9-12				x					x	x	x										
7-10						x															
7-9							x						x								
8-12														x		x				x	x
10-12																		x			
8-10																			x		
Subjects																					
Robotics and Algorithms	x	x																			
Computational Thinking	x																				
Arts		x																			
Biology			x																		
Science			x																		
Mathematics				x				x			x	x		x							
Magic Square and Chess				x																	
Geography					x																
Society					x																
Natural Sciences						x		x													
Geology						x															
Multiplication Tables							x														
Environment								x								x					
Geometry									x	x			x						x		x
Areas and Shapes											x										
Human Body												x									
Circulatory System												x									
Programming															x						
Loops															x					x	
Solar System																					
Time-tables																x					
Sustainability																	x				
Spelling																		x			
Stars Maps																			x		
Citizenship																					x
Velocity																					x
Scales																					x

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Consortium:



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