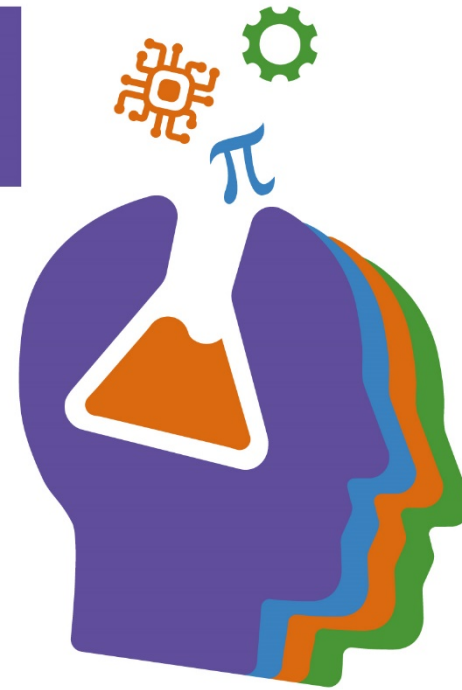


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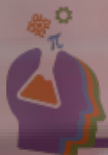


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Students' Handbook

**Guidelines to support the use of
the content and tools to
practice the learning projects on
the THINKER LAB platform**





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Welcome to have fun learning STEM subjects



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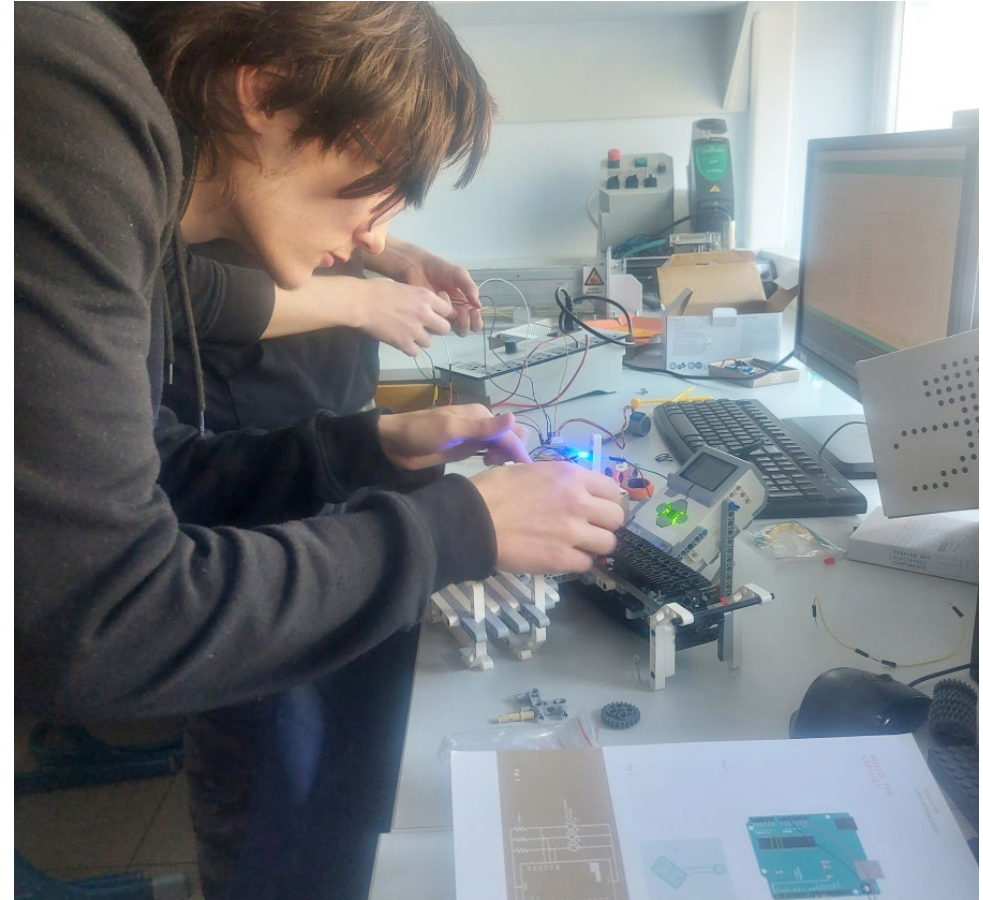


Introduction

THINKER LAB intends to broaden the educational offerings available to students weaving learning paths more connected to **co-construction learning processes** based on a **laboratory-based approach**.

The Thinker Lab platform has been made by an European-funded project aiming at improving STEM skills of students and **inclusive learning**.

This **guide** is addressed to students who are interested in **using our projects** and **willing to collaborate with their mates**.



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2. Read this first – how to use the platform

This platform of projects is offering you a possibility to learn **STEM subject skills**.

By solving the challenges of the projects presented on this platform you are learning **STEM subjects: Science, Technology, Engineering and Mathematics**.

By solving the challenges of the projects, you learn **the theory of the STEM subjects** in a fun way by doing, building and testing the solutions.





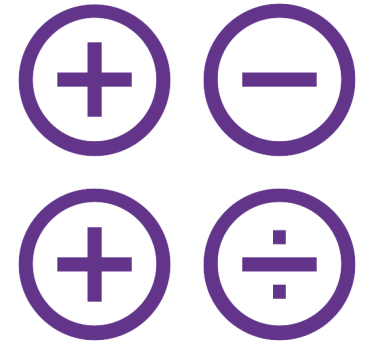
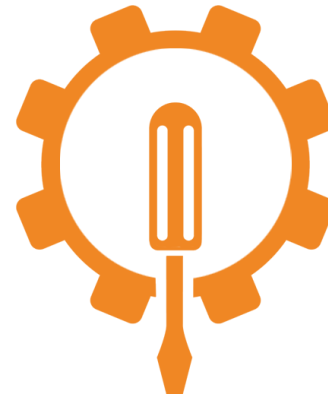
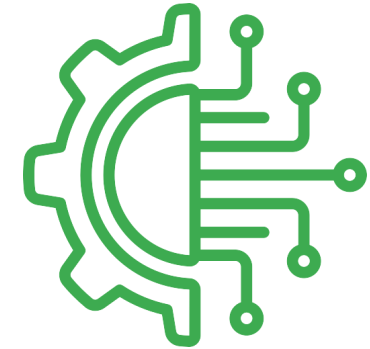
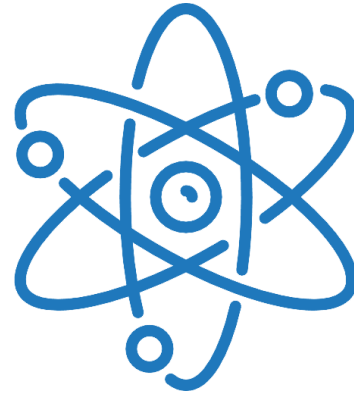
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2. Read this first – how to use the platform

On each projects cover page you can find a symbol/symbols which are telling you **which STEM subjects** this project is developing.

The STEM skills are also informed when you open the project description. **You can filter the projects** by STEM categories (“filter by category” on the starting page)



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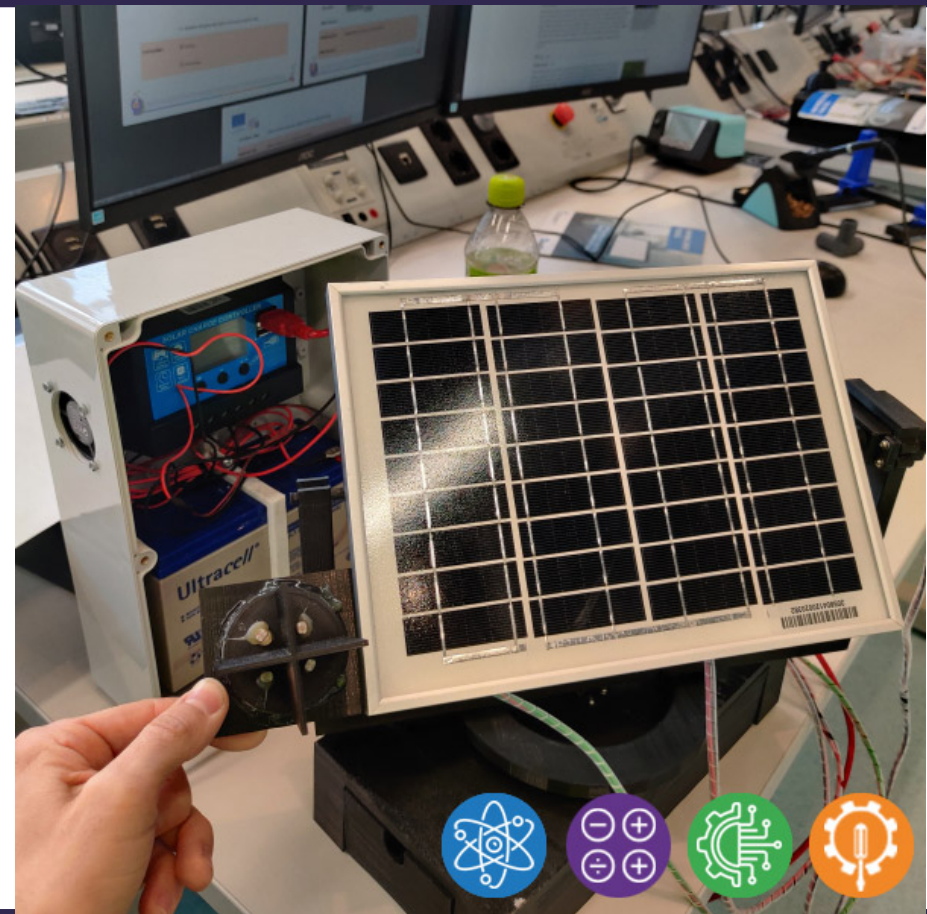


Use of low-cost materials

One important element in these projects is the use of **low-cost materials**.

This is because we want you to be able to **learn by doing** and not be restricted with limited access to high tech equipment and money.

You can build **your own laboratory** at home or outdoor or use the school facilities, if that's possible.



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Language

You can choose your **preferred language** on each project description page.

On the upper right corner there is a **drop-down menu** for google translations.

Translation with google -

[HOME](#)

[PARTNERSHIP](#)

[PROJECTS](#)

[HACKATHON](#)

[BEST PRACTICES](#)

[GUIDE](#)



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3. How to use the projects

The first **25 projects** have been created by 5 vocational schools in Italy, Spain, Sweden, Slovenia and Finland.

One is created by the student group which won the partner international hackathon.

Note: A google account is required to upload the study materials





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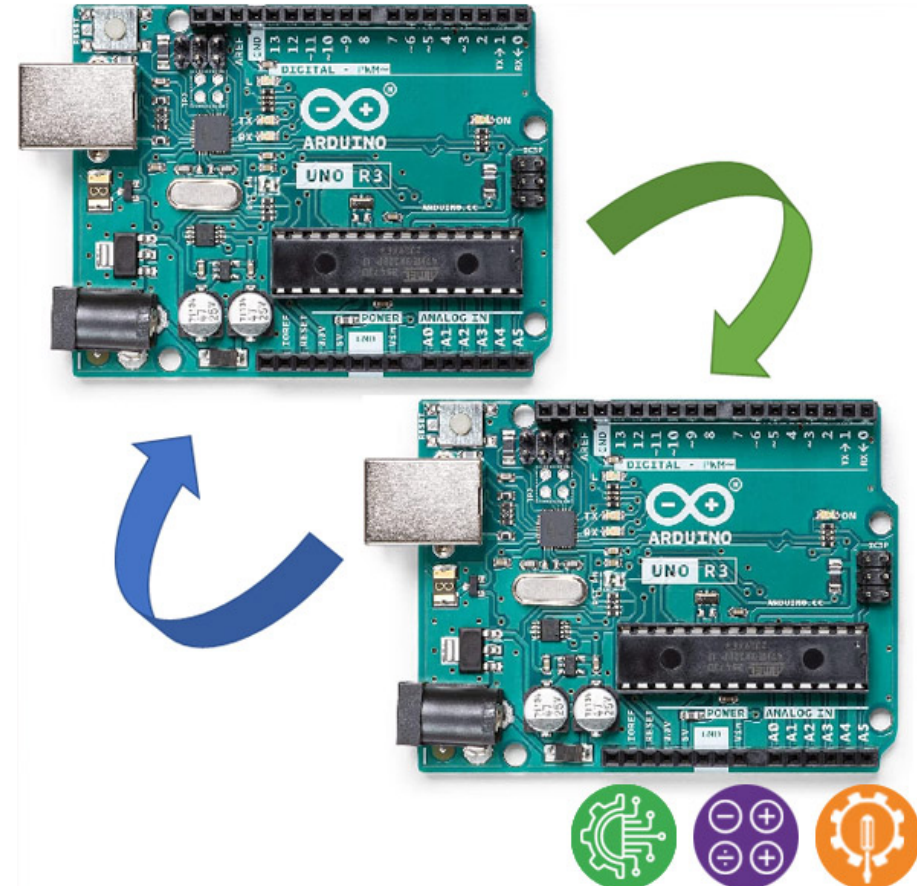


3. How to use the projects

You can choose **any of the projects** on the platform, purely based on your interest.

Click the cover page and you will find detailed **instructions and steps** how to proceed.

The projects are defined with **difficulty levels**: very easy, easy, medium, hard



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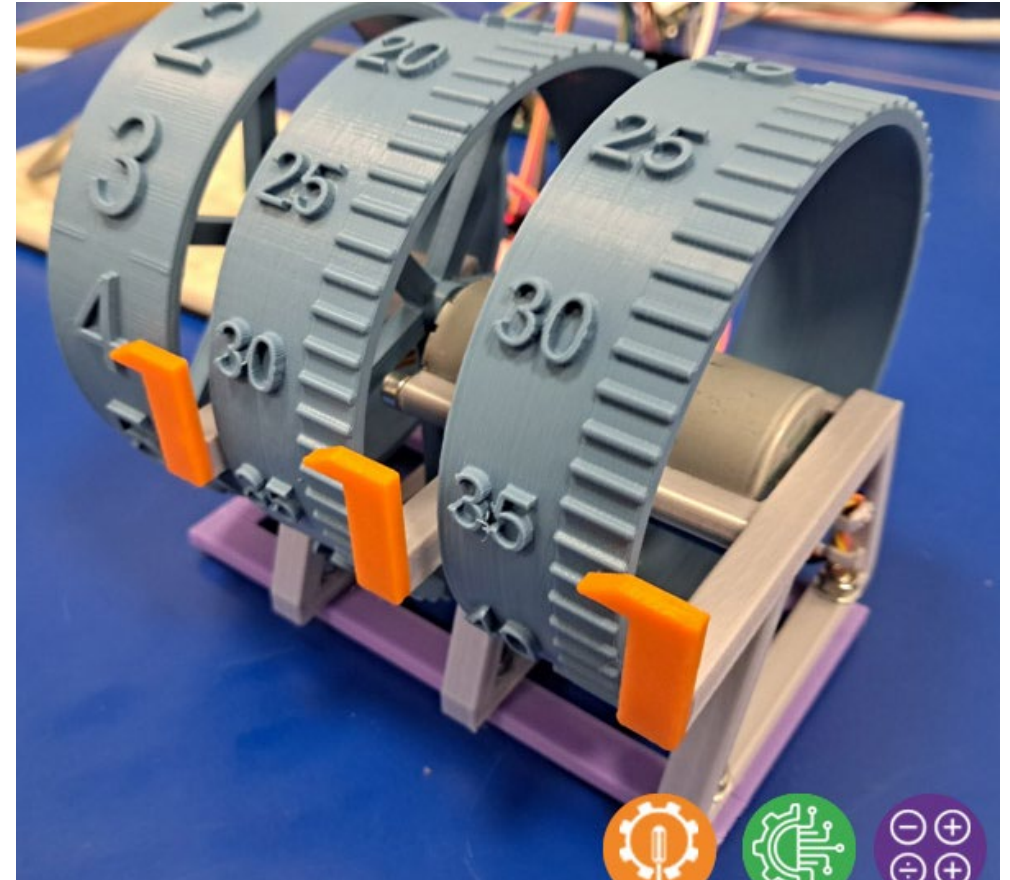
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3. How to use the projects

The project descriptions follow the same structure:

- What will you learn (**which STEM**)
- **Expected time** needed to do the project
- **Materials & Recycled Materials** needed
- **Guiding material:** text/photos/videos
- **Further steps:** if you want to have more fun
- External **links** for useful information
- **Difficulty** level
- **Evaluation** of the project and message board



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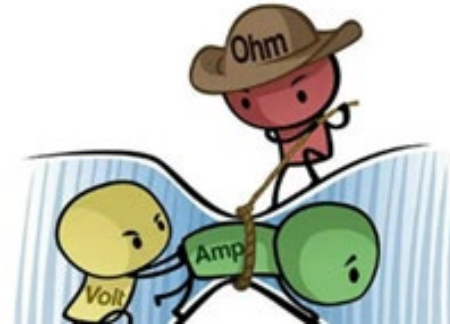
4. Your feedback and comments

We kindly ask you to rate
the project(s) based on your
experience

Friday, 28 April 2023 07:50

PLAY WITH OHM

Rate this item ☆☆☆☆☆ (0 votes)



Calculate a resistor value and its current flow

Learn how to apply a Voltage Divider and an Arduino

Download attachments:

| [23_-_Play_with_Ohm.ino](#) (16 Downloads)



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4. Your feedback and comments

You can also give **feedback and comments** at the end of the project description.

Your comments and feedback give the project producers and other users **valuable information for further developing** the projects easier to solve.

Add comment

WARNING! If you add a comment you accept the privacy policy!

Name (required)

Role (Teacher, Student, Other)

1000 symbols left





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5. Your proposal for a new project

[BACK](#)

Would you like to send us a new project challenge for others to solve?

Fill in the form which available on the main page. **“Upload your project”**.
Your proposal goes through an evaluation process and maybe we will contact you back to ask some questions and clarifications.

Have you got a STEM project to share? Collaborate with ThinkerLab and make it available on the website!

[UPLOAD YOUR PROJECT *](#)



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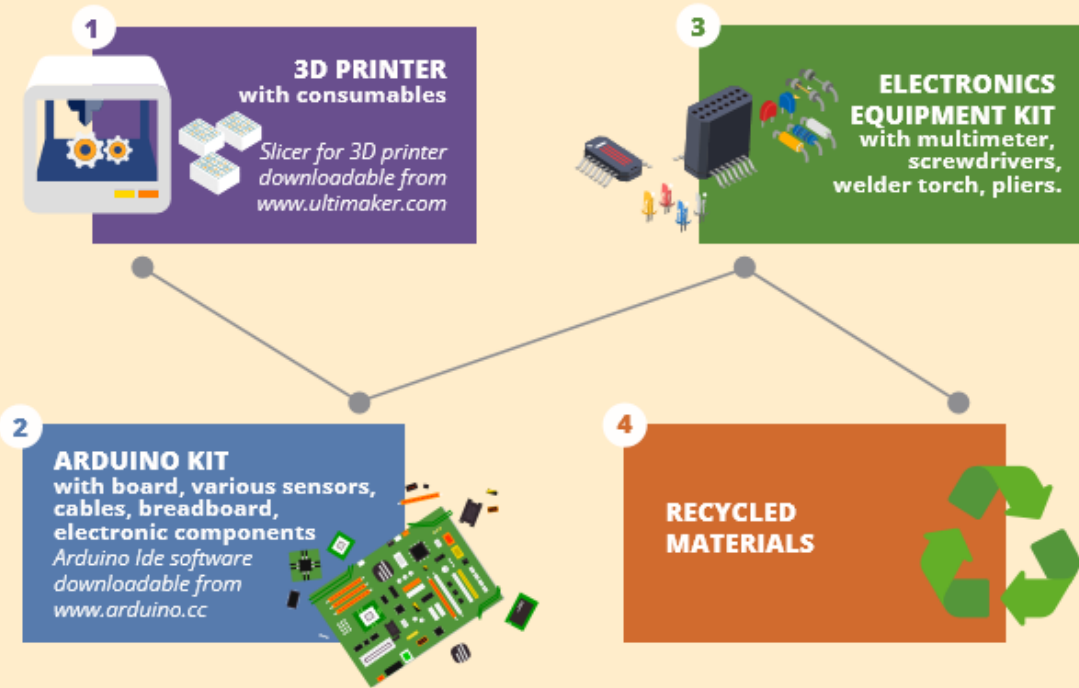
Equipment

Some **digital equipment** and tools are needed to upload or develop the projects.

Here's a short list to let you start thinking on this.

EQUIP YOUR SPACE TO CREATE YOUR LABORATORY

Overall budget from 600 euro*



* Some elements are collective laboratory equipment; others are equipment of individual workstations. The budget varies according to the number of workstations. Find out more at www.thinker-lab.eu.
PLEASE NOTE: the laboratory must be equipped with at least one computer.

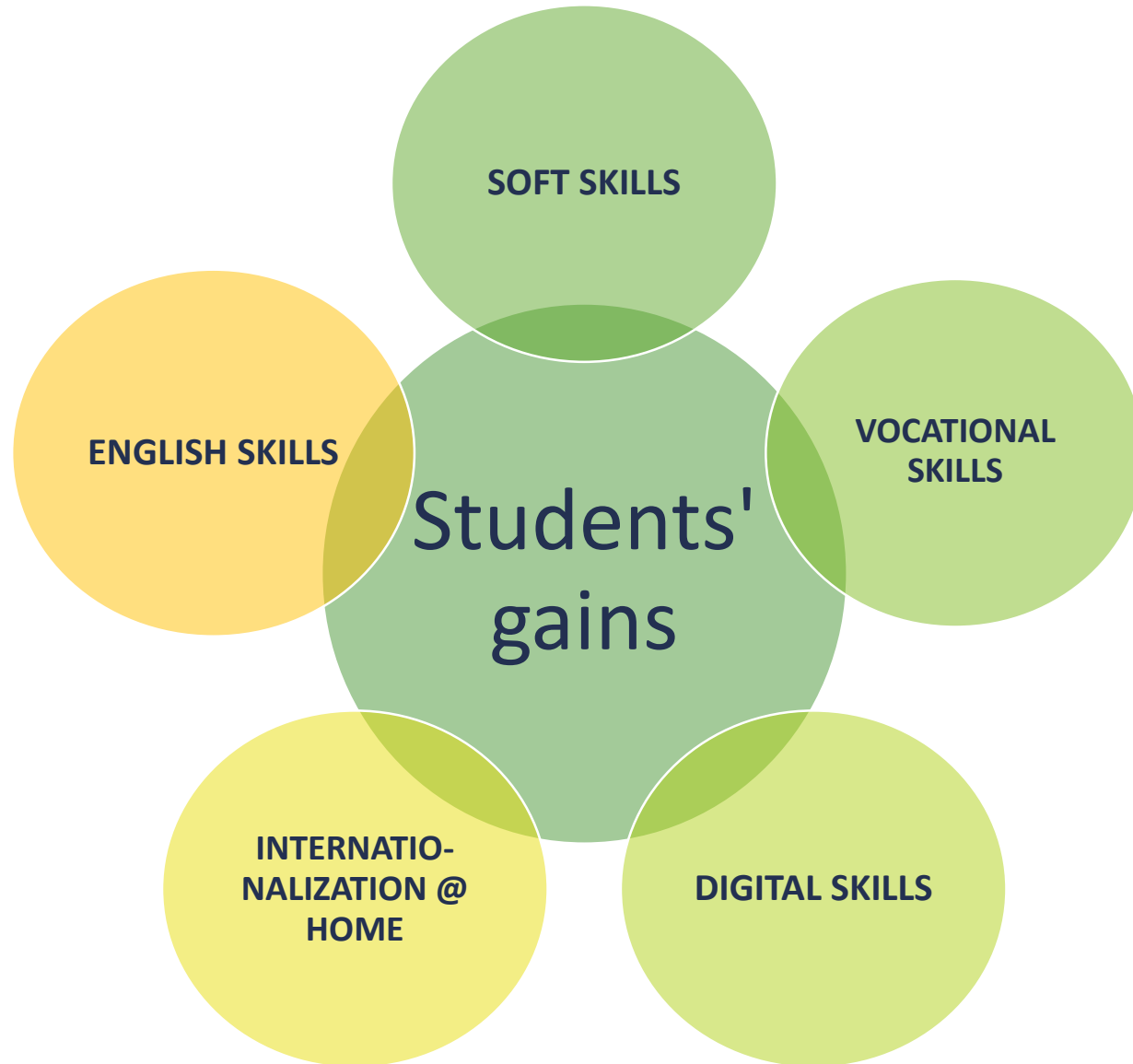




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Why should you join Thinker Lab platform?



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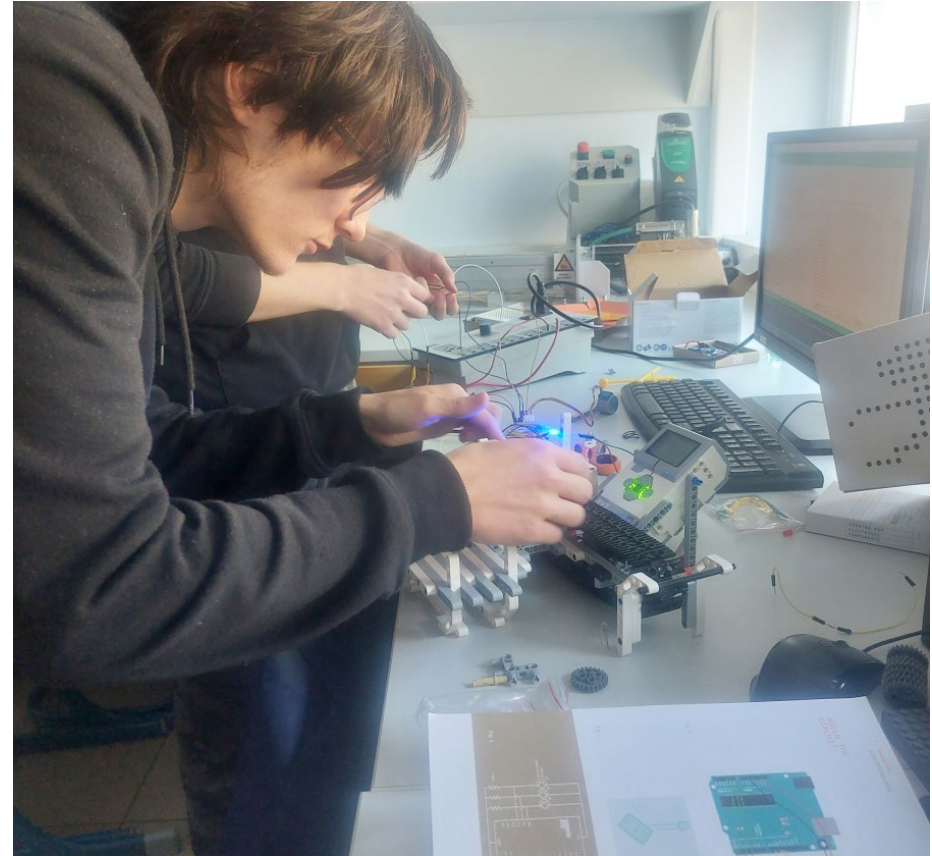
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Soft skills

BE AWARE OF YOUR SKILLS! With these activities you can gain the following soft skills:

- **ability to learn in an intercultural environment and interact with international students**
- **self-confidence**
- **ability to work in teams**
- **critical thinking**, e.g. initial ability to reflect about different didactical methods and to understand the differences
- **initial ability to self-assess the skills acquired**



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English skills

Practice your English skills
with other students.

It is important to learn and
use a foreign language in
your profession.



Tämä kuva, tekijä Tuntematon tekijä, käyttöoikeus: [CC BY-NC-ND](https://creativecommons.org/licenses/by-nc-nd/4.0/)



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Digital skills

Get the ability to use digital technology for learning and fun purposes, such as videos, free applications, presentations, online surveys.



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Internationalization @ Home

Participate to an **international experience** for free and without the need of moving.

This **Internationalization @ Home** opportunity can also be developed prior to the physical mobility.



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Ready- Go!

Now you are ready to get started!

**Hope you have fun while learning
new skills !**



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