




# Micro:bit Escape room

## Preparation manual

 **2-4 students**

A Micro:bit Escape room is an innovative twist on the traditional escape room experience, incorporating micro:bits as essential components.

 **60 minutes**

In this interactive adventure, primary school students solve puzzles using the capabilities of micro:bits strategically placed throughout the room.

They must collaborate, employ problem-solving skills, and utilize the features of the micro:bits to progress through the challenges within a set time limit of 60 minutes.

From decoding messages to programming tasks, each micro:bit presents a unique puzzle that teams must conquer to advance.

### Team conditions:

- 2-4 members in one team
- all team members belong to one age group (younger or older)
- all team members have basic micro:bit knowledge (they have completed the Micro:bit Basics course)
- all team members have filled out the project's pre-evaluation form

### Room conditions:

- enough space for a team of up to 4 students and empty desks for micro:bits to be placed around the room
- equipped with a computer and a stable Internet connection
- availability for 60 minutes for one team (there are no other students in the room)

### Equipment:

#### Younger age group – level 1 (ex. age 7-10)

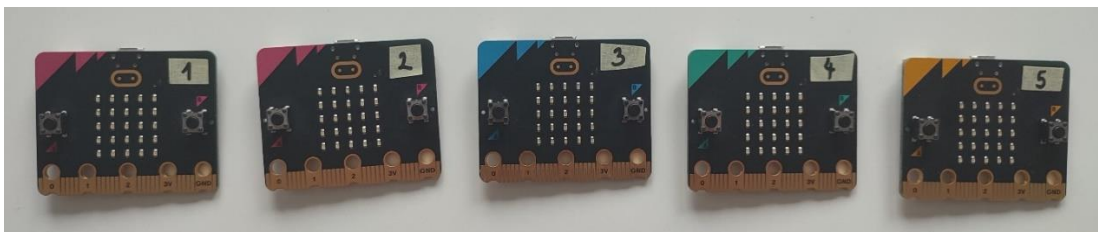
- computer with a stable internet connection
- 4x micro:bit v2
- 4x micro:bit battery case
- 8x AAA battery
- 5x A4 printed paper marking
- pen

#### Older age group – level 1 (ex. age 11-14)

- computer with a stable internet connection
- 5x micro:bit v2
- 5x micro:bit battery case
- 1x microUSB cable
- 10x AAA battery
- 6x A4 printed paper marking
- pen

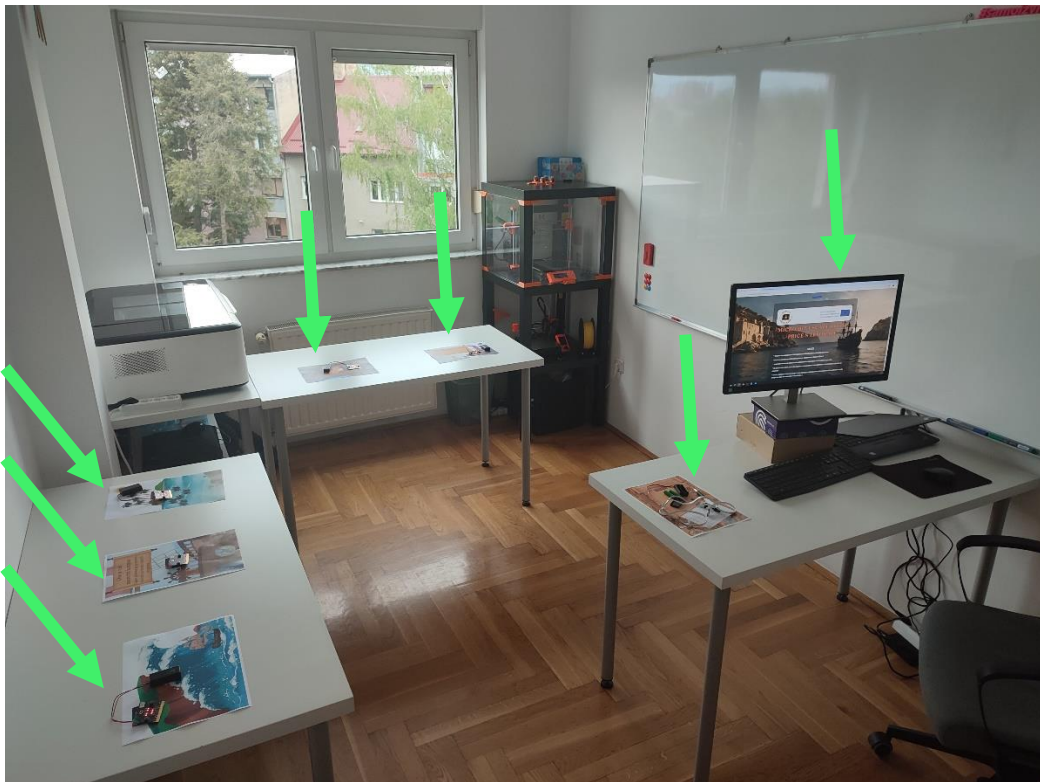
## Set-up:

1. **Set up the teams** of 2-4 students that are the same age group. Choose an age group for which you want to prepare the Escape room.
2. **To each student give an evaluation form** to fill out before participating in the Escape room activity. Also, you as a **teacher fill out the evaluation form** before conducting **the first** Escape room activity.
3. **Print the A4 papers** (preferably in color, but can also be in black and white).
4. **Label each micro:bit** with a number to easily connect it with its A4 marking (see example below).



5. **Download the corresponding program** to previously labeled micro:bit (program *micro:bit-1m-compass* goes to micro:bit labeled 1 etc.)

6. **Arrange the A4 marking inside the room.** Everything needs to be in plain sight – nothing is hidden, so the students can easily recognize what is a part of an Escape room. See example below – green arrows point to the elements that are part of the Escape room.



**7. Arrange the micro:bits on A4 markings** by following the label on the micro:bit and number on the paper, inside the micro:bit icon. Micro:bits labeled 2-5 need to have a battery case plugged in (with **new batteries** inside). Only micro:bit labeled 1 does not come with a battery case. On the A4 paper marking for extra equipment put a 1 or 2 pens, 2 AAA batteries and a battery case. For older age group add 1 microUSB cabel. See photos below for Level 1 and Level 2 equipment preparation.

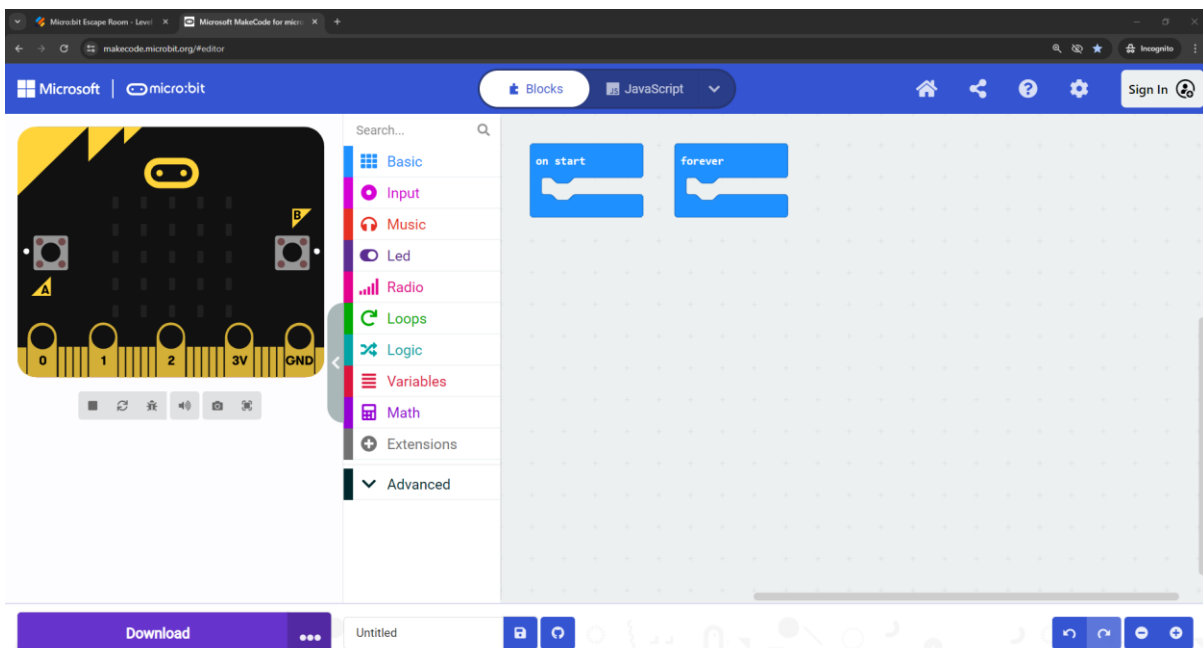
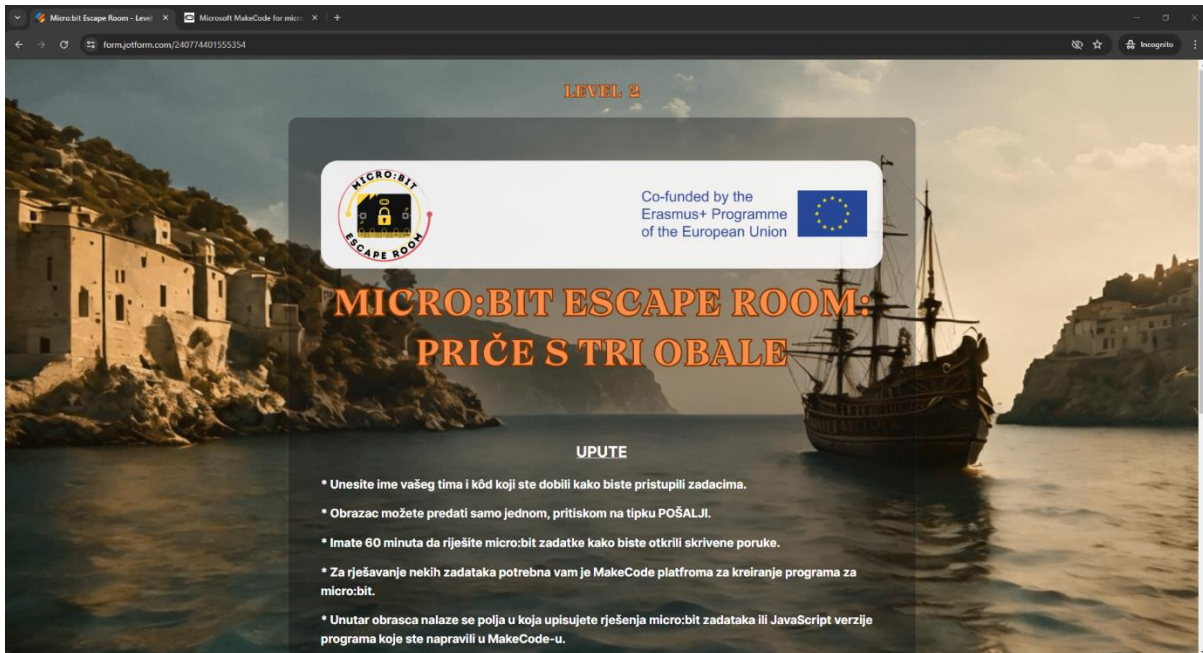
**Level 1:**



**Level 2:**



8. Turn on the computer and **open the Micro:bit Escape room platform** (choose the language and level) **and MakeCode editor**. One team can use only 1 computer and only those 2 windows can be open.







9. Print out the Entry codes and scoring tables PDF. Each school that participates in this project will receive their own list of unique entry codes via e-mail. For additional entry codes, please send an email to [teodora.tadej@irim.hr](mailto:teodora.tadej@irim.hr). If you have more teachers conducting the activity, mutually agree which codes you will use. Prepare one entry code for a team and fill out the team information in the table. The entry code can either be given to the teams before entering the room or it can be set near the computer, clearly visible to them.



Micro:bit Escape room  
Code list and Scoring Table  
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Entry code	Team name	Team members	Age group (Younger/Older)	Score (max:100/130)	Total time	Date
XXXXXX						
HHHHHH						
TTTTTT						
LLLLLL						
UUUUUU						

10. Please make sure each team understands all the Escape room instructions before they start. After they enter the code and start the time, you can't interfere and help them – teams must resolve all the tasks on their own. See the instructions below. The instructions will also be visible on the platform welcome page.

- Enter your team name and the code you received to access the tasks.
- You can submit the form only once by pressing the **SUBMIT** button.
- You have 60 minutes to complete the micro:bit tasks.
- Some tasks require the MakeCode platform to create programs for the micro:bit.
- Inside the form are fields where you enter the solutions to the micro:bit tasks or JavaScript versions of the programs you made in MakeCode.
- You earn points for each correctly entered solution.
- To successfully solve the tasks, use the micro:bits and other equipment placed on the A4 papers around you.
- Labels on the micro:bits and images of micro:bits on A4 papers are not part of the tasks.
- Do not turn off the micro:bits from their power sources and do not program them, unless otherwise instructed.
- The team with the most points and the best time wins.



**11.** When the team, the room and equipment is ready, **Escape room can begin**. You as a mentor can be the only one near the room and can help if there are some technical difficulties. We recommend that only one team uses an escape room at a time.

**12.** The activity is complete when the team clicks on the **SUBMIT button** inside the platform. The score and time page will show up and you can write the information in the scoring table for that team.

**13.** Each student from the team needs to complete the evaluation form after participating in the Escape room activity. Also, you as a teacher fill out the evaluation form after conducting all Escape room activities.

## RESULTS:

All the results are gathered through the platform, for each level and language. They are visible only to IRIM team, but we will share all of the results after the activities are conducted.

The information visible in the results is the team name and the entry code, points for each task, total points and total time. So, it is important to keep track of the students that make the teams by filling out the score table.

## TECHNICAL ISSUES:

**Micro:bit stops working** – make sure all the batteries are new and will last through the activity, but in case a micro:bit stops working due to low batteries, was accidentally unplugged from the source or the reset button was accidentally pressed, prepare the extra micro:bit that will have a compass program so you are able to initialize that micro:bit if needed.

**Lost Internet connection** – try reconnect to the Internet and see if the progress on the form is kept. Do not exit from the form so the data is kept. If the computer or the form needs to be restarted, let the team start from the beginning with the same code. You can let them start with some time already passed, depending on your assessment.