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CURRICULUM

for Micro:bit Escape room

IRIM - Institut za razvoj
i inovativnost mladih

Content Overview:

Activity Name	Micro:bit and Escape room
Activity Executors	Teachers in elementary schools and student groups
Target Student Age Group	Elementary school students (7-14 years) are divided into two age groups: younger and older, based on the school system.
Annual Hours	15 - 20
Required Equipment	**Basic equipment and technology** ● Computer with internet access ● USB cable ● Micro:bit ● Battery case ● 2 AAA batteries **Software** ● Microsoft MakeCode graphical application for programming ● Escape room platform **Additional materials** ● A4 printed paper, pencil

Technology Description	**Micro:bit** is a microcomputer featuring a processor, input and output ports, and is powered by two AAA batteries. It can display text, numbers, images, animations, reproduce sound, measure temperature, and determine cardinal directions. It is equipped with sensors for motion, light, and touch, and can communicate with other micro:bits via radio link. Micro:bit v2 also has built-in speaker and microphone. **Microsoft MakeCode** is a graphical programming interface, using a drag-and-drop method for code blocks. It includes a micro:bit simulator for code verification before transferring to the micro:bit. **The Escape room platform** allows students to view tasks and enter solutions for micro:bit escape room. It collects all the team results that can later be downloaded.
Topics	1. Introduction to micro:bit 2. Simple examples with micro:bit 3. Escape room preparation and implementation
Content	1. Introduction to micro:bit 2. Smile! – first program for micro:bit 3. Simple micro:bit example - Wink 4. Simple micro:bit example - Display emotion 5. Simple micro:bit example - Step counter 6. Simple micro:bit example - Wake up micro:bit 7. Simple micro:bit example - Repeat multiple times 8. Simple micro:bit example - Dancing micro:bit 9. Simple micro:bit example – Send and receive 10. Simple micro:bit example – Decipher a message 11. Preparation of Micro:bit Escape room activity

Learning Outcomes	**Students will know:** • Recognize and name the parts of the micro:bit. • Explain the principle of operation of the micro:bit sensors. • Recognize and name the parts of the MakeCode editor. **Students will be able to:** • Properly connect the micro:bit to a computer and use the MakeCode graphical interface. • Create program code in MakeCode. • Transfer the program code to the micro:bit. • Use the micro:bit according to the program code. **Students will want to:** • Use the micro:bit responsibly. • Treat the equipment they use in their work responsibly.
Implementation Method	As an extracurricular elective activity in a specialized (computer) classroom.
Methods of Learning and Teaching	Guided discussion and discovery Discussion Demonstration Problem-solving learning Research Game-based learning Collaborative learning Programming Competition

Work forms	Independent work Pair work Group work
Work with students with disabilities	Custom made Escape room platforms and written materials for **students with visual impairment and reading difficulities:** bigger font size, adjustable text size, black background - white text contrast, more time for solving Escape room
Evaluation Method	Through the results of participating in the Escape Room Challenge (micro:bit competition for elementary school students in Croatia, Portugal and Greece).
Literature	Micro:bit Escape room materials Fundamentals of digital creativity with micro:bit - manual (in Croatian)