

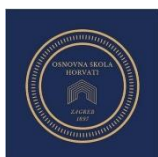


Co-funded by the
Erasmus+ Programme
of the European Union



CURRICULUM

for Micro:bit Escape room





Content Overview:

Activity Name.....	2
Activity Executors	2
Target Student Age Group.....	2
Annual Hours	2
Required Equipment.....	2
Technology Description	3
Topics	3
Content.....	3
Learning Outcomes.....	4
Implementation Method.....	4
Methods of Learning and Teaching.....	4
Work forms	5
Work with students with disabilities	5
Evaluation Method	5
Literature	5



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	<p>Basic equipment and technology</p> <ul style="list-style-type: none">● Computer with internet access● USB cable● Micro:bit● Battery case● 2 AAA batteries <p>Software</p> <ul style="list-style-type: none">● Microsoft MakeCode graphical application for programming● Escape room platform <p>Additional materials</p> <ul style="list-style-type: none">● A4 printed paper, pencil



Technology Description	<p>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.</p> <p>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.</p> <p>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.</p>
Topics	<ol style="list-style-type: none">1. Introduction to micro:bit2. Simple examples with micro:bit3. Escape room preparation and implementation
Content	<ol style="list-style-type: none">1. Introduction to micro:bit2. Smile! – first program for micro:bit3. Simple micro:bit example - Wink4. Simple micro:bit example - Display emotion5. Simple micro:bit example - Step counter6. Simple micro:bit example - Wake up micro:bit7. Simple micro:bit example - Repeat multiple times8. Simple micro:bit example - Dancing micro:bit9. Simple micro:bit example – Send and receive10. Simple micro:bit example – Decipher a message11. Preparation of Micro:bit Escape room activity



<p>Learning Outcomes</p>	<p>Students will know:</p> <ul style="list-style-type: none"> ● 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. <p>Students will be able to:</p> <ul style="list-style-type: none"> ● 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. <p>Students will want to:</p> <ul style="list-style-type: none"> ● Use the micro:bit responsibly. ● Treat the equipment they use in their work responsibly.
<p>Implementation Method</p>	<p>As an extracurricular elective activity in a specialized (computer) classroom.</p>
<p>Methods of Learning and Teaching</p>	<p>Guided discussion and discovery</p> <p>Discussion</p> <p>Demonstration</p> <p>Problem-solving learning</p> <p>Research</p> <p>Game-based learning</p> <p>Collaborative learning</p> <p>Programming</p> <p>Competition</p>



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 – bigger font size, black background - white text contrast, hover option, more time for solving Escape room Students with reading difficulties – specific font type and size, adjusted line spacing, text organized in smaller sections, adjusted background color, 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)