

We are the makers – IoT Learning Scenario

Backpack Microbit Chat

1. Title of the Scenario	<i>Backpack Microbit Chat</i>
2. Target group	Secondary school first grade (11-14 years)
3. Duration	3 meetings of 2h each TOT 6h + 3d printing time
4. Learning needs	Prerequisites: <ul style="list-style-type: none"> - basic knowledge of SketchUp software - basic knowledge of 3d printing - basic knowledge of Microbit device programming - aptitude of the class group to team work
5. Expected learning outcomes	<ul style="list-style-type: none"> - Know the meaning and use of IOT (Internet of things) and Wearable devices - Tackle a real problem by proposing innovative solutions - Knowing how to design a product by integrating theoretical knowledge in a collaborative way - Develop programming and three-dimensional modeling / printing skills - Orient students towards STEM disciplines
6. Methodologies	TINKERING which comprises: <ul style="list-style-type: none"> • Teamwork • Laboratory activity • Project based learning • Problem solving
7. Place / Environment	Laboratory equipped for design School and territory for experimentation
8. Tools / Materials / Resources	<ul style="list-style-type: none"> - 2 laptops per work group - 1 Microbit card per group - 3D printer (or trusted 3D printing center) - Electrical material (battery, cables, etc ...) - School material (felt-tip pens, colored pencils, sheets, notebook, etc ...) - Backpack - Possible recovery material to customize - Softwares: SktechUp + Microbit Makecode software

<p>9. Step by step description of the activity / content</p>	<p>Meeting n ° 1: 1. Introduction to IOT and Wearable devices: brainstorming 2. Launch of activities: how to communicate at school without a mobile phone ?! 3. Focus on Microbit's "Radio" function 4. Division of students into pairs: one designer and one programmer 5. Comparison within the groups: first design indications and first feedback from the teacher</p> <p>Meeting n ° 2: 1. Design of the wearable device: modeling and customization "case" with SketchUp + programming with Microbit. Final feedback from the teacher</p> <p>3D printing phase of the "case"</p> <p>Meeting n ° 3: 1. Experimentation among classmates 2. Annotation of the criticality of your device and report of the activity carried out</p>
<p>10. Feedback</p>	<p>Ongoing and final considerations. Guided discussion on: difficulties encountered, interesting aspects, possible future improvements, etc ...</p>
<p>11. Assessment & Evaluation</p>	<p>• Ability to work in a team (formative assessment) • Addressing and solving problems (formative assessment) • Product quality: programming, model, originality (summative evaluation)</p>