

# Sammonlahti School turns students into superheroes and STEM knowledge into a superpower

A Finnish secondary school finds new ways to leverage technology resources and foster an appreciation for STEM fields in children and teachers alike



**Maker's Red Box**

# 1

# Sammonlahti School at a glance



**Location:**  
Lappeenranta, Finland



**Type:**  
Secondary school



**Student population:**  
300



**Average class size:**  
20

## 1.1

**The challenge: put technology resources to better use and make more students fall in love with STEM.**

Over the past few years, Sammonlahti School has made major technology investments to promote hands-on learning and develop hard skills in children, such as 3D printing, wood and metal working as well as soldering. Located in Lappeenranta, Finland, it also has close connection to the Skinnarila campus and easy access to the tools and facilities of Lappeenranta University of Technology and Saimaa University of Applied Sciences, including industrial laser cutters.



However, they soon realised that having the right technology was only half the story.



In 2020, Olli-Jussi Rissanen and Riika Rissanen, both teachers at Sammonlahti School, found themselves looking for an education programme that provides students with new challenges and the school with opportunities to make better use of available technology resources. They first turned to LEGO® robots, which students quickly got the hang of – so much so that they even participated in two LEGO League Challenges.

But what the school really needed was a comprehensive programme that is both pedagogically sound and able to draw in students of all backgrounds and interests.



**Maker's Red Box**

# 2

## Course structure and skills developed

### Superheroes – Digital Storytelling

**Bring their origin story to life in a storybox**

Skills: vectorization, laser cutting, 3D printing, soldering, visual communication

**Develop superhero characters**

Skills: microblogging, maker skills, creative writing, self-awareness, role play

**Design superheroes, sidekicks and villains**

Skills: conflict management, empathy, emotional intelligence, decision-making

**Give them superpowers**

Skills: programming microcontrollers, problem-solving, creativity, critical thinking

**Work as a team to defeat villains**

Skills: collaboration, social skills, improvisation, adaptability, reliability



## 2.1

### The solution: turning students into superheroes – and the digital citizens of the future

An encounter between our teams at the Bett Show in London led to a deeper understanding of Sammonlahti School's needs and goals – and soon after, the first Maker's Red Box course at the school.

The children completed the Superheroes – Digital Storytelling course, where participants become the main characters in their own universes. They put their creativity to the test while taking on guided and independent writing challenges, solving problems and completing missions.

The objects the children create are also part of the story, like the story box, which illustrates a key moment in their character's life.

While making, the kids rely on technologies like **3D printing, laser cutting, microelectronics, lighting systems and soldering**. Superheroes are not all they bring to life, however. Through their villains, the makers share their deepest fears and discuss difficult moral dilemmas with each other. The course ends in an epic board game battle, where the superhero squad has one last all-important mission to accomplish.



## 3.1

### The result: merging art, maths, physics, tech and more into impactful experiences

“It’s much easier to build technical skills if there’s an underlying frame story. It keeps children focused on the challenges and motivated in finding solutions,” explains Olli-Jussi Rissanen. Even those who don’t normally get excited about tasks related to programming or working with hand tools.

**Case in point:** in one of the subsequent courses, all the students specialized in arts and felt indifferent at best to technology or maths and physics. Until they discovered how STEM tools can help them better express themselves creatively, that is. **“It was great to see them realize that science is a superpower – not a burden.”**

Coincidentally, the participating teachers had the same experience. Not all of them had prior knowledge of programming micro:bits or laser cutting, which meant that they learned as much as the students throughout the course – and came out more motivated and inspired on the other side.

“It’s so refreshing to do something else for a while. The English and Finnish teachers who were involved in running the courses kept telling me how the challenges opened up new perspectives for them and gave them new ideas for writing tasks,” says Riika. “Plus, we could finally put our 3D printers to good use.”

#### MRB x Sammonlahti School highlights

##### Most developed soft skills

- Cooperation
- Teamwork
- Creativity

##### Most developed hard skills

- English language
- Finnish language
- Creative writing
- 3D visualization



# CONTACT US

Interested in Maker's Red Boxes?

## Get in touch.

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