



**Maker's Red Box**

# Budapest British International School

challenges students to solve urban problems with design thinking

The IB World School pilots our City of the Future course to teach students key IB MYP skills and help them become the critical thinkers, creators and collaborators that tomorrow's cities will need





## Budapest British International School (BBIS) at a glance

### Location

Budapest, Hungary

### Type

EYFS primary and secondary school

### Student population

415

### Average class size

18

## THE CHALLENGE



# Find a design-focused STEM project that aligns with the IB MYP framework

*"I was looking to deliver STEM-based lessons that were more design-oriented," recalls Lies Warlop, Head of Department of Visual Arts & Design Technology at [Budapest British International School](#) when explaining what led her to try Maker's Red Box. Most of what she found were projects with a strong focus on science but little to no emphasis on creativity. "I wanted something less science-heavy, because I'm not a science teacher. It also needed to involve a real-life problem that students could solve through the IB MYP design cycle."*

As a key part of the International [Baccalaureate Middle Years Programme](#) (IB MYP), students are encouraged to use their practical and creative thinking skills to solve design problems, explore the role of design throughout history and consider their own responsibilities when making design-related decisions. In doing so, they follow the MYP design cycle as a framework for the research and analysis of problems, development and delivery of feasible solutions as well as for testing and evaluating models, prototypes, products and systems.

**With BBIS being a member of the International Baccalaureate (IB) World School community, organizing activities that help students grow into creative, critical and reflective thinkers is something Lies and her colleagues are actively striving to do. Another criterion was to find a project that not only ticks IB MYP boxes, but does so without requiring a substantial investment.**

This is mostly because BBIS students already had access to tools such as 3D printers and micro:bits, thanks to the school's ongoing modernization efforts.



# Prompting students to apply design thinking to solve the most pressing problems cities face today

*"When Maker's Red Box came up in the results, I got curious," Lies continues. Her research soon led to a site visit with our team, so she and her colleagues could decide if our course materials fit their educational needs and goals – as well as those of their institution and students. The answer was a resounding yes, followed by a green light from the school administration to run a City of the Future pilot course.*

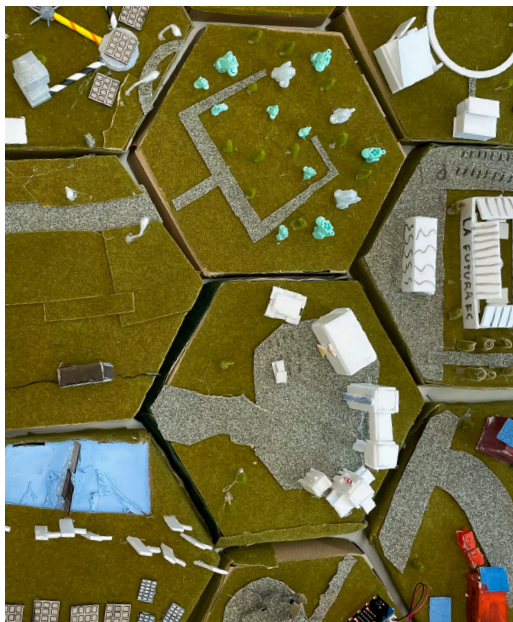
*"We all got really excited, because it was exactly the type of real-life problem-solving challenge I'd been looking for."*



In the course, children become the residents and builders of the city of the future, while searching for solutions to major problems urban communities face today. Meanwhile, they take a closer look at existing city planning principles and discuss how to improve them.

**As it naturally follows the MYP design cycle, the project is easy to align with IB expectations.**

Lies explains, “*You just have to figure out which strands, that is, elements of specific criteria, apply to which aspect of the work. That’s about the only implementation you need to do.*”



As far as challenges go, time was a much bigger issue. Lies decided to deliver the course at the end of the school year. Meaning it had to be completed in just 10 hours instead of the recommended 32. But that didn't faze the arts and design teacher or her MYP 3 students. “*I skipped the introduction to micro:bit and 3D printing, because the students already knew their way around these technologies. Using a laser cutter, however, was completely new. It was something I had to teach both the group and myself! It was also the only tool we had to buy for the course.*”





## Course structure and skills developed

### Get to know design thinking and urban planning

Skills: communication, open-mindedness and tolerance

### Take on roles as city officials and carry out research

Skills: collaboration, data and information management, entrepreneurship

### Lay out the city map

Skills: collaboration, critical thinking, open-mindedness and tolerance

### Design buildings and lay the foundations

Skills: critical thinking, 3D printing and design, complex problem solving, creativity

### 3D print the buildings

Skills: 3D printing and design, self-confidence, sustainability

### Deliver campaign speeches, elect a mayor

Skills: communication, entrepreneurship, critical thinking, open-mindedness and tolerance

### Assemble the city

Skills: communication, creativity, collaboration, manual skills

### Unveil the city of the future

Skills: communication, self-confidence



## THE RESULT



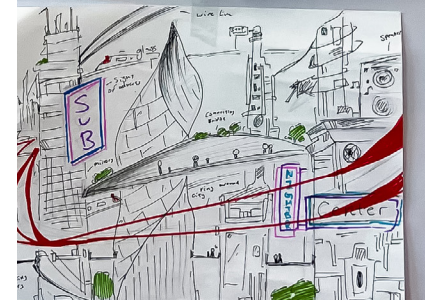
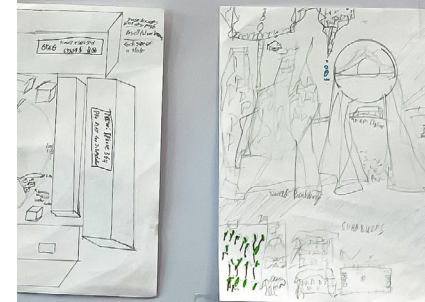
# A new level of student motivation and collaboration unlocked

*"When we put everything together in the end, it looked great. I was really proud of the students, especially in light of the fact that they only had ten hours to achieve what they did," says Lies. But that's far from being the only positive outcome of the course.*

It resulted in great collaboration between the students, giving them both plenty of independence and ample opportunity to work together. A good example is how they designed the city's road network, which zigzags through every student's "jurisdiction".

**While each appointed "city official" is responsible for a certain area of city life, building the road network requires them to make decisions and solve problems as a group.**

This combination worked really well, Lies stresses. *"I've never seen them work together so smoothly. Fourteen is a tricky age for students anyway. I think this workshop could also be ideal to do at the beginning of the year as a team-building activity."*



Another thing that made class management a breeze was the fact that the students were extremely invested in the project. They all signed up for the workshop but only learned what it was about when it started. Soon they were so caught up in their designs that they hardly wanted to take their breaks. Lies says she kept getting emails from the group long after school hours with last-minute design changes and ideas.

*"I didn't ask them to do this. They did it because they were so involved. And so stoked that they could implement everything they'd learned in class, like 3D printing or micro:bit programming, in a single project."*





## Most developed soft skills



Collaboration



Creativity



Entrepreneurship



Communication



Complex problem-solving

## Most developed hard skills



3D printing and design



Laser cutting and vector graphics



Programming and robotics



Basic electronics and soldering



Manual skills



# About Maker's Red Box



**Maker's Red Box**

Maker's Red Boxes help you turn students into active learners and school labs into inspiring learning spaces. Each box includes complex, STEAM-focused teaching materials with a comprehensive teacher's guide and supporting digital content. It also comes with a starter kit for 12 students.

Using the power of storytelling, the course materials both guide the creative process and help children gain transferable knowledge through hidden learning. They focus on developing soft and hard skills like collaboration, creativity and critical thinking as well as 3D design and printing, laser-cutting, soldering, electronics and robotics.

Maker's Red Box contains everything you'll need to plan, prepare for and manage the classes, even if you have never written a single line of code or used a 3D printer before. They come with a detailed teacher's guide, 16 video tutorials and sample objects. The recommended tasks and time frames have been tested to provide full immersion for groups of 12.



## INTRIGUED?

**Get in touch:**

[contact@makersredbox.com](mailto:contact@makersredbox.com)  
[makersredbox.com](http://makersredbox.com)