

Future Thinking Innovators Award 2021

Shortlisted Initiative

Shrewsbury International School Bangkok City Campus, Thailand

Overview of the school:

Shrewsbury International School Bangkok City Campus is a purpose-built British primary school in the heart of Bangkok, for children aged 3-11 years old. It is a hive of energy, enthusiasm, and home to students and teachers with a passion for learning. Our superb facilities and supportive teaching approach are designed specifically for primary-aged children, establishing the foundations for successful learning and ensuring that our students are prepared for the academic rigours that await in their Senior School education at Shrewsbury's highly successful Riverside campus and beyond.

Summary of initiative:

Shrewsbury City Campus provides a unique and innovative Design and Technology (D&T) curriculum, led by subject specialist Ms Katie Holland.

Within this initiative, age is no object. Our students aged 5-11 years old (Years 1-6) use a diverse range of robots and coding software, alongside computer aided design (CAD) software for computer-aided manufacture (CAM) including 3D printing, laser cutting and vinyl cutting. Our children also undertake a breadth of technologically advanced projects including e-textiles and design challenges focusing on innovative and futuristic design.

Our D&T initiative is built on cross-curricular links, making learning meaningful for the topics the children are studying. When Year 3 study Romans, they construct their own working wooden catapults. When Year 6 study Rivers, they design and build functional bridges. Throughout, children benefit from clear STEAM links through growing their skills in science, technology, engineering, arts and mathematics.

City Campus is also the first school in Thailand, and the first primary school in the world to deliver the accredited Design Engineer Construct! (DEC) programme. Traditionally offered in the UK for secondary school-aged pupils, DEC at City Campus sees children aged 5-11 learn the principles of architecture and engineering. In Year 6, City Campus students complete a full portfolio of work to gain their DEC Award. As part of DEC, City Campus is also 'adopted' by Bentley Systems and Topcon, allowing industry professionals to work alongside our children to give them a real-life experience of the subject.

How the initiative has encouraged students in lateral thinking for a specific purpose:

Our designated D&T facility with cutting-edge technology and an innovative curriculum allows our young students to apply their knowledge from STEAM subjects and use them in real-life scenarios. The technology that our students are using equips them to be innovators that can think, design and engineer the future world to be sustainable, automated and suitable for what today's society and future societies require. Our D&T initiative capitalises on the natural curiosity and creative thinking that primary-aged children already have. The combined application of our STEAM projects allow our students to think creatively and logically to find solutions to problems, equipping them to produce inventions that could improve the world of medicine, automation, education and much more.

Our students are already imagining new technologies to improve people's lives and solve problems that society faces in environmentally-friendly and timely ways. As part of their innovation journey, City Campus students recently submitted almost 100 entries to the Primary Engineer® Young Leaders Awards in the UK. The children were asked to design products that provided solutions to problems in society. To inspire their designs, children first interviewed a UK-based civil engineer, before writing a letter to the competition judges to explain why their design should win. Entries from City Campus included a Bluetooth-operated suitcase, GPS-operated shoes and a device which reduces pollution caused by road traffic. Many of our students were successful in gaining Pass, Merit and Distinction grades, and others were shortlisted for higher awards.

How the initiative had impact on student learning with potential for longer-term development as a sustainable initiative for the school:

Our students love studying Design and Technology, and very much look forward to their lessons. D&T is a hands-on, meaningful and memorable application of the STEAM subjects. We start our children in Early Years (4 years old) with special masterclasses in using tools (such as saws) safely to create a simple toy. Students in Years 1-6 go on to study the principles of Architecture and CAD software, alongside learning robotics and coding, which are all elements of an innovative future. The practical aspect of the D&T lessons provides ongoing excitement and engagement with cross-curricular subjects such as Literacy, History, Geography, RE and Citizenship. For example, when Year 4 students are studying the Egyptians, they make pyramid-shaped night lights by using e-textiles to sew electronic circuits together with conductive thread. By creating this piece, they learn about the mathematics of shape, the science of electricity, the history of Egypt, and the technology of smart materials. The innovation possibilities within D&T provide a sustainable link to City Campus's ever-evolving curriculum.

Longer term, the strong consolidation and wider knowledge that comes through our D&T and STEAM initiatives is ensuring our students become well-rounded global citizens. City Campus's links with DEC, both in the UK and globally open a world of opportunities for our students. Students continue to study D&T at senior school at Shrewsbury Riverside's highly successful D&T department there, which makes the pathway for City Campus students to continue developing their passion and skills in D&T.

How the initiative demonstrates student commitment and a rigorous process for effective learning:

The range of activities within our D&T initiative are extremely popular and our students are fully committed to the curriculum. Our robotics and coding extracurricular provision is oversubscribed, and we receive outstanding feedback from children and their parents about how much they enjoy the clubs and learning these skills. Similarly, the roll-out of the DEC programme at City Campus has been met with full investment and support from our students. When DEC was launched, the children put together an impressive range of presentations for their parents, teachers and industry VIPs, to educate their audiences on sustainable design in engineering and architecture.

Our D&T initiative is carefully and rigorously planned to ensure our students' skills are continually built upon, challenged and stretched. More advanced tools, machinery, equipment, technology and skills are implemented as the children progress through the year groups. In Year 1, the children start with sustainable woodwork projects. By Year 6, students are confidently designing modern and innovative homes using CAD software.

Head of department Ms Holland has 10 years of experience in D&T and education. Her teaching experience at both primary and secondary level in the UK and internationally has equipped her to

build and launch an innovative and engaging D&T initiative at City Campus, and equip other professionals inside and outside the school. Ms Holland also hosts information sessions for parents, to ensure that our families are able to endorse the effectiveness of the subject at home.

How the initiative includes student voice and/or student action:

Our D&T initiative equips students with the practical tools to act on the changes they would like to see in the world. From Year 1, an understanding of robotics and coding gives our children the confidence and ownership to map their own paths. These seeds of choice and consequences allow children to develop their voice and commitment to action.

Throughout the curriculum, our children learn to identify problems in society and use their D&T skills to think logically and creatively to come up with solutions. As part of their DEC portfolio, our Year 6 students are asked to design an inclusive and sustainable home. They must think about a range of people's needs, cultures, ages and how their house can be environmentally friendly. The children used CAD software to include lifts, sensory rooms, solar panels, wind turbines and reclaimed water supplies in their designs.

The curriculum is also designed to include charity projects. For example, the children use Textiles in Year 6 to make clothes from upcycled fabrics which are then donated to a non-profit relief organisation in Africa. Year 5 children design and make products to sell at a fundraiser event for their own chosen charities.

Sharing beyond the school community:

City Campus is accredited by the Federation of British International Schools in Asia (FOBISIA), enabling us to share the skills and opportunities from our D&T initiative with other teachers and schools within the FOBISIA group.

The D&T department also uses its [dedicated Twitter account](#) to celebrate successes and to share ideas. During the transition into home learning following the outbreak of COVID-19, we launched our 'We Are Family' D&T and Arts series, with video demonstrations of activities that families around the world could do at home to keep busy, creative and to learn new skills during lockdown.

City Campus uses national media channels in Thailand to share the opportunities available in its D&T initiative. Thai Rath (news), Bangkok Post (news) and [BKK Kids](#) (family lifestyle platform) have all featured the school's D&T initiative both in print and on television.

Our initiative uses a network of professional contacts within the industry to extend its reach. Organisations such as the Civil Engineering Surveyors magazine, VEX Robotics and Bentley Systems have all used their influence to support the D&T curriculum at City Campus. Our connection to the DEC programme and its founder Alison Watson MBE has also opened up a world of opportunities and exposure for the initiative. Alison is a former land surveyor who now works with governments, contractors and schools, both internationally and in the UK to open up opportunities for young people in design, engineering and construction.