micro:bits around the world
The pocket-sized computer transforming the world

More than 20 million children are learning with the micro:bit at school. From its origins in the BBC UK Make It Digital project, the hardware tool and software editors of the micro:bit are changing the ways young people think about and work with technology today and for the future.

The BBC micro:bit is a physical computing device that provides the connection between abstract ideas and real world outcomes. Giving students the experience of building knowledge and gaining vital skills in computational and critical thinking. Developing digital creativity through problem-solving, programming and innovation.

This booklet introduces ten education programmes from a diverse range of school and curriculum systems, each using the micro:bit as a tool for children’s learning.
micro:bits around the world

Reach and scale

- An estimated **20 million** children learning with the micro:bit worldwide
- **4.5 million** devices in circulation
- micro:bit device in over **60 countries** around the world

Photo credit: ©Micro:bit Educational Foundation
In 2017, after the first year of the UK project, 90% of the 11- and 12-year-olds who received micro:bits said it helped to show them that anyone can code.

Among teachers, 85% said micro:bit had made ICT/computer science more enjoyable for their students.

50% of teachers who had used micro:bit said they felt more confident as a teacher.

Source: BBC

A 2018 survey into a micro:bit pilot by the University of Helsinki found that:

85% of teachers agree micro:bit could be spread as a national tool for programming.

90% would use micro:bit again.

80% of students said anyone could learn programming after using micro:bit.

Source: University of Helsinki

Students aged 9 – 12 were surveyed after completing activities with micro:bit.

96% said that they will continue using their micro:bit.

51% expressed that learning to use micro:bit was easy or very easy.

68% of students learned about micro:bit through a teacher.

Source: Plan Ceibal
The BBC micro:bit was created at the BBC in partnership with 29 organisations.

In 2016, the device was launched as part of Make It Digital, a major UK-wide initiative focused on creating the next generation of digital pioneers.

Every 11 and 12-year-old student in England, Northern Ireland, Scotland and Wales received a micro:bit, **1 million devices** were given for free.

Most secondary schools continue to make use of the micro:bit in teaching for 11-to-14-year-olds.

The device is now becoming popular with primary school teachers for 8-to-11-year-olds.

The Micro:bit Educational Foundation supports the National Centre for Computing Education (NCCE) in England and the Digital Xtra Fund in Scotland. Donations of new devices are made directly to schools and to the NCCE Computing Hub schools’ lending scheme, which includes curriculum-linked resources for teachers.

A further **20,000** new micro:bit devices are available for loan from UK libraries.

Photo credit: ©Micro:bit Educational Foundation
“I’m proud to have played a part in the development of #MicrobitsInLibraries. Borrowing micro:bits to use in your own time helps create a sense of ownership and the freedom to experiment. Thanks to the Micro:bit Educational Foundation and the Library Services across the UK who so readily embraced the project, helping it to grow from strength to strength.”

Amy Hearn, Leeds, UK

Amy Hearn was awarded in the 2020 Honours List with a British Empire Medal for her contribution to libraries in the UK.

- #MicrobitsInLibraries was initiated when Amy Hearn and Michael Rimicans of Kirklees Library Service, Leeds began introducing micro:bit to local libraries in 2017
- With support from the Micro:bit Educational Foundation, the scheme was developed to enable libraries all over the UK to make the micro:bit available to borrow locally
- Libraries embed micro:bits into their engagement and outreach programmes, supporting children and families in disadvantaged areas across the country
- More than 20,000 micro:bits are on offer in thousands of UK libraries
In Denmark, the Ultra:bit programme was launched in 2018 by the Danish national broadcaster DR.

Using a platform well-known by children aged 9 - 12, DR incorporates the micro:bit into popular fiction and technology-focused content. The education team DR Skole develops materials for subjects such as Danish language, maths, crafts and science.

The use of the micro:bit is integrated directly into existing lessons, making it easier for teachers to connect the use of the technology to the classroom. Grit Dørup Lund, a teacher implementing the micro:bit at Gammelgaardsskolen, Denmark, says her Grade 4 students (age 8 – 9) are learning about technology with an open mind. “They get super inspired. They don’t have any barriers to learning how to program as we adults have. They just do it.”

The Ultra:bit programme has reached 90% of schools in Denmark and over 70,000 students. The micro:bit is now established for teaching in three grades at school, grades 4, 5 and 6.
In **Singapore**, the **IMDA’s (Infocomm Media Development Authority)** **Digital Maker Programme** began in 2017 offering the micro:bit, teacher training on coding and activities and ideas for incorporating the micro:bit into lessons.

Together with **Microsoft**, they have equipped over **1,000** schoolteachers with basic skills of digital making using the micro:bit and shown them the possibilities of infusing digital making in lessons or schools’ programmes.

10-year-old Cedric Phua had always shown an interest in making. He decided to pursue this by joining the “Infocomm Club” in his third year at Seng Kang Primary School.

Cedric's advice to aspiring young digital makers: “I realised the key to success is, don’t be discouraged even if you fail after many tries. Believe in yourself and you can do it!”

It was there that he was first introduced to the micro:bit. Over **100,000** students signed up for the Digital Maker Programme which benefits nearly **65%** of all schools in Singapore. The programme will expand to the remaining schools over the next two years.
In **Finland**, ICT and technology are central in the new curriculum, required as a ‘transversal’ skill in multi-disciplinary content modules, as well as in maths, sciences and craft.

To support teachers in developing these competencies, the **Innokas Network**, a network of trainers and educators with a focus on digital skills, coordinates training through regional centres all over Finland, running pilot programmes to establish what works in Finnish classrooms.

**Impact**

- By 2019, Innokas trained over 1,000 teachers, youth workers and librarians to use the micro:bit
- Over **10,000** devices have been distributed to schools and communities throughout Finland to date
- The micro:bit has also been adopted in universities by lecturers of applied sciences at the University of Helsinki and University of Eastern Finland
- The Innokas micro:bit pilot is the largest and most successful teacher pilot carried out by the organisation
- The device has been proven as a great tool for creative technology which works very effectively for the Finnish context: Innokas now incorporate the micro:bit into their training toolset for each session they run nationwide

**Photo credit:** © Innokas Network
In **British Columbia, Canada**, one district chose to roll out the micro:bit because of its ‘low floor, no ceiling’ for learners and teachers alike. It is one of only a few tools that **Coquitlam School District No.43** has selected to be an integral part of its K-12 Coding Continuum which provides resources and learning support for schools and teachers.

All schools – primary, middle and secondary - in Coquitlam now have class sets of the micro:bit for students to use collaboratively, while teacher training focuses on transversal skills and embedding computational thinking into teaching into subjects including maths, science and English.

Over 1,000 teachers across 70 schools, in primary, middle and secondary receive training and support for using the micro:bit in class teaching and cross-subject capacities, with additional after-school support provided across the district as a 3-part series of micro:bit work-shops.

**Nicole Cruz**, a technology specialist trainer offers teacher support in Coquitlam, she recommends that “beginner teachers run a lesson on how to use an editor such as Makecode or Python first, before distributing devices”. She also encourages children to “work in pairs or small groups”.

Photo credit:©SD43 Coquitlam
Many teacher training courses are adopting the micro:bit as a tool to help trainees develop their teaching practice. In **New Taipei City, Taiwan**, professors and volunteers at **National Chengchi University** run the **SOOBI project**, which aims to empower trainee teachers to develop their knowledge and ability in coding by working with the micro:bit and Python.

The programme also supports trainee teachers to deliver free workshops and coding camps for children in the surrounding region. Hundreds of children in rural schools have benefitted from the popular workshops which the team hope to expand in 2020.

The programme has attracted the attention of other universities in neighbouring provinces who want to develop their own similar initiatives. There are now over **30 micro:bit champion schools** in Taiwan promoting digital skills in the region.
In **Uruguay**, the not for profit **Plan Ceibal** was founded in 2007 to ensure equal technological opportunities for all Uruguayan children. Since then, every child entering the state education system has been given a computer and free internet access at school. The initiative also seeks to transform methods of teaching and learning – using the power of the micro:bit to develop computational thinking.

The team launched the pilot programme in 2018 with 500 schools, offering students the chance to explore the micro:bit while taking part in online workshops. In an effort to tackle challenges of scale and access, virtual introductory workshops and face-to-face advanced workshops are also held for teachers.

Due to phenomenal demand, Plan Ceibal are expanding their offering of training and workshops, delivering 30,000 micro:bits to students and teachers, as well as 3,500 micro:bit extension kits. They are aiming to reach 150,000 students in Uruguay in 2020.
In Lithuania, Kompiuteriukai Vaikams (Computers for Kids Foundation) was launched in 2017 with the goal of introducing Lithuanian children to the basics of computational thinking and technical creativity, using micro:bit.

The programme reached 90% of 5th graders - over 20,000 students - in its first year. In 2018, the foundation was awarded a World Summit Award for their success in “integrating coding on microcomputers into the formal learning process”.

In June 2019, over 200 students from across Lithuania took part in a competition to create micro:bit automobiles from old toys. The event will be extended in 2020 to reach even more schools. The team hope to influence an update to the Lithuanian national curriculum to include programming.

“Our goal is to involve as many students, volunteers and teachers as possible in learning programming in a fun and easy way.”

Vilautė, Project Manager
In Croatia, IRIM (Institute for Youth Development and Innovation) has been developing educational projects based on the micro:bit since 2017.

The projects target different age groups and institutions, covering everyone from primary school students to seniors through schools, libraries and educational NGOs. To date, their projects have reached over 150,000 people throughout Croatia and neighbouring countries.

Their latest initiative, supported by Google, is the Digital Citizen programme which aims to establish libraries as centres of digital creativity. It brings micro:bits, 3D printers, training and workshops to hundreds of libraries throughout Croatia, Bosnia & Herzegovina, Kosovo and Serbia.
In **Bangladesh**, the micro:bit is being introduced to district libraries through **Libraries Unlimited**, a five-year project run by the **British Council**. The project provides access to micro:bits, library workshops and introductory activities for children. Each workshop is attended by a number of volunteers who help give practical support to the children.

The pilot phase of the programme reached **18 districts** and **2,000 children aged between 8-15 years**. The workshops indicated a hugely positive impact:

- **90%** of children said they would visit the library if more of these workshops were on offer
- The majority of participants had never done coding before, but **95%** would be interested in learning more coding in the future
- **39%** said they do not have regular access to a computer at home or at school
- **45%** said the workshop was their first time using a public library
- Over the next two years, the programme aims to impact at least **175,000 children** in all 64 districts of Bangladesh
Teachers across the countries of the Western Balkans, Albania, Bosnia & Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia, are working with the micro:bit as part of the British Council’s 21st Century Schools programme – an initiative supported by the UK government to bring digital skills to classrooms throughout the region.

The programme is designed to build long-term stability by boosting young people’s employment prospects, equipping them with the skills they need to compete in the global labour market. Up to 1 million young people will be impacted through the programme over the next five years, with teaching practice also being transformed in order to give students problem-solving, critical-thinking and digital literacy skills.

A Serbian secondary school teacher described the impact of 21st Century Schools in her classroom: “As soon as they took the micro:bit in their hand, their imaginations went wild. They started asking questions like ‘what if we try this?’, ‘what if we connect the micro:bit with this?’ That is the key – learning to solve non-routine problems. Children are becoming creative.”
How the Micro:bit Educational Foundation’s website supports teachers & education programmes

- Let’s code: free online and offline software editors to help children learn how to code
- micro:bit classroom: the teacher tool to easily manage and review students’ code across lessons
- Get started: guides, videos and projects to help you get going and explore the micro:bit in depth
- Projects: quick coding activities and longer problem-solving projects based on the UN Global Goals for Sustainable Development
- Lesson resources: complete curriculum-linked units of work with easy-to-download editable resources

A growing range of accessories, sold by tech product companies, designed to extend the micro:bit, is available to explore via microbit.org/buy/accessories.

For more information, visit microbit.org or contact the Micro:bit Educational Foundation, microbit.org/about/#contact-us

The Micro:bit Educational Foundation was established in 2016 as a UK-based, not for profit organisation, with the support of its founding members (including the BBC). Our mission guides us to support exceptional education programmes across the world.

microbit.org/about