Physical computing & education services

Beginner to advanced educational platforms, teaching resources and support, makerspace tools and lab equipment, all in one convenient place.

farnell.com/education-services
Using computational thinking to address the digital skills gap

The World Economic Forum’s ‘Future of Jobs’ report states that skills deemed important for school leavers entering the workforce are changing considerably – and 35% of skills valued in 2005 will have changed by 2020.

As creativity, critical thinking and complex problem solving become increasingly sought after by employers, educators need to rethink current curriculum content and teaching methods to better equip young people with the skills needed to address this new working economy. This reflects changes already happening in labour markets, driven by the pace of development in smart cities, artificial intelligence and the Internet of Things, which are creating new roles and jobs for current and future school leavers.

Computer scientist Jeannette Wing at Carnegie Mellon University believes computational thinking should be added to every child’s analytical ability, enabling them to use concepts fundamental to computer science to formulate and solve problems, design systems and understand human behaviour. The UK Department of Education has mandated that some level of computational thinking be taught at all grades from nursery to college, exposing every schoolchild to computational concepts so it becomes second nature whatever discipline they operate in moving forward.

Computational thinking will be an essential part of addressing the growing digital skills gap that exists across the globe, and many economists, business leaders and politicians have highlighted that organizations are already transforming how they identify talent and develop their workforces.

The challenge for today’s educators is to help schoolchildren prepare for this new working economy, helping prevent a major skills gap in the workforce of the future.

In Finland, educators are shifting from imparting knowledge on a subject basis to teaching and developing skills that specifically relate to logical thinking, problem solving and computational thinking. Students are encouraged to work collaboratively, identifying problems, breaking them down into manageable chunks, and generating workable and effective solutions to apply to real-world scenarios.

But the skills gap shouldn’t be seen solely in terms of the digital economy. In recent years, there has been increased focus on developing problem solving and creativity skills across the entire workforce, not just those who want to work in the technology sector.

Ironically, increased availability and acceptance of advanced technology is sometimes accused of creating a generation incapable of solving problems on their own. Ubiquitous smartphones, voice assistants and ‘apps for everything’ make us overly reliant on these ready-made tools.

65% of children entering primary school today will ultimately end up working in completely new job types that don’t yet exist. However, traditional subject-based teaching and knowledge remains the priority in many schools.
The role of physical computing

We are committed to supporting the development of the next generation of engineers, but this requires more than just creating a generation of coders. Physical computing forms a crucial piece of the computational thinking jigsaw, allowing interaction with systems or objects from the physical world.

Students learn that not all solutions to real world problems are readily available, helping break the cycle of ‘ready-made’ technology. Using complex problem solving to develop something unique themselves transitions them from mere consumers of technology to creative thinkers. They interact with software and learn about physical hardware and how they can influence their environment, rather than just observing. Students can work on elements that form the basis of the IoT, connecting devices and carrying out meaningful analysis. Experience shows they become genuinely enthused when creating something with real world application.

The result of this learning is the development of computational thinking skills through the way they approach the problem they have been tasked to solve. Students must consider: what is the problem? How can it be solved? How can the solution be executed? And most importantly – what went wrong? We need to convince the electronics industry, governments across the globe and educators in the classroom about the benefits of applying physical computing to develop computational thinking. The tools already exist: now, we must work together to develop practical ways of providing them to students, engaging teachers and learning professionals, so students can begin to develop the necessary skills to equip them for the future.

Physical computing encourages students to develop competencies in highly creative and collaborative ways.

It is our belief that people of all ages – from young students to experienced makers, designers and developers – should not only understand how the connected world works, but have the chance to contribute to its development through coding, programming and designing projects.

With commitment to developing the technology industry by inspiring and promoting creativity, critical thinking, and complex problem solving skills, we aim to help equip young people for the future. By offering a comprehensive range of educational platforms complete with curriculum support, lesson plans, and numerous project ideas we hope to help enable the teaching of physical computing and computational thinking in classrooms and code clubs worldwide. We also offer all the tools and accompanying accessories you’ll need to kit out your schools makerspace or high tech labs, encouraging students of all ages and abilities to learn and grow.

Inspire the next generation with our educational platforms, tools, and resources, enabling them to develop their future!
Beginner to advanced educational platforms, teaching resources and support, makerspace tools and lab equipment, all in one convenient place. We offer a number of services for students and educators, including convenient purchasing options, exclusive promotions and access to learning tools to support your classes and curriculum.

FEATURES AND INTERVIEWS
Discover the latest developments from across the industry, including exclusive insights from leading industry figures and trailblazers of technology in education.

TECHNICAL JOURNALS
A comprehensive series of journals, explaining the importance of core technologies, how they work, and how to use and implement them. Get face-to-face with the very latest tech challenges, innovations, solutions and applications important to design engineers in the semi-conductors industry. These quarterly journals explain the importance of core technologies, how they work, how to use them, as well as predictions relevant to their implementation.

CALCULATORS AND CONVERSION CHARTS
Whether you’re trying to move from imperial measurements to metric, solve for Ohm’s law, or make sure you’ve got the correct weight, these tools are designed to help. Our online conversion calculators and conversion tables provide the conversion ratios you need for your everyday calculations.

EXCLUSIVE BRANDS
Our brands offer a wide range of reliable products including connectors, cables, test devices, tools and much more at exceptional prices (typically 30% less). Exclusive Brands provides reliable, affordable solutions for a wide range of industries and applications. Essential Performance. Powerfully Priced.

A forum where members can support STEM initiatives at all levels, creating confidence to successfully introduce a wide range of technologies into the classroom. Find a number of exclusive promotions, learning tools and resources for educators worldwide.

FEATURES
Get the latest news on significant STEM developments and initiatives from around the world. View case studies outlining others ideas and strategies used.

DEDICATED SPACES
From our extensive micro:bit resources to the inspirational STEM projects we’re supporting, find all the content in one place with our dedicated STEM spaces.

ROADTESTS
Trial the latest STEM kits and accessories from top suppliers by participating in our in-depth user generated road tests. Apply for your chance to receive brand new products free of charge!

FREE DOWNLOADS
We offer an extensive library of downloadable resources, from project guides and curriculum to posters and pamphlets for your classroom or code club, all free of charge to registered members.

COMPETITIONS
We regularly work with major suppliers to run exclusive giveaways, prize draws and design competitions to support STEM in schools and universities.

PROJECTS
We host hundreds of user generated project guides developed by teachers. From beginners’ exercises to advanced design and coding challenges, find step-by-step guides for easy replication in your own classroom.
**Global**
There are over 4 million micro:bits currently being used within Education all around the world.

**Interesting**
86% of students said the BBC micro:bit made Computer Science more interesting to them.

**Accessible**
90% of students said working with the BBC micro:bit has shown them that anyone can code.

**Inclusive**
70% more girls said they would choose Computing as a school subject after using the micro:bit.

**Impactful**
85% of teachers agree it has made ICT/Computer Science more enjoyable for their students.

**Confident**
50% of teachers who’ve used the micro:bit say they now feel more confident as a teacher.

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**Lesson plans and curriculum materials**
Lesson plans and curriculum materials have been made available for a wide range of subjects including Design Technology, Physics, Art, Music classes and more, and include anything from easy experiments to creative coding challenges. With features like LEDs, buttons, sensors, and wireless communication micro:bit is a versatile and engaging tool for all ages.

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**Farnell**
Visit farnell.com/bbc-microbit for order codes and more information.

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**micro:bit**
The micro:bit is a handheld, programmable micro-computer design to make learning easy and fun! With over 200 different activities and resources, micro:bit is already widely used in schools around the world. It’s easy as well as accessible to learn to code with micro:bit as you can use any web browser to code in Blocks, Javascript, Python, Scratch and more with no software download required.

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**HARDWARE**
- micro:bit
  - 1 micro:bit and a Quick Start Guide.
  - Order Code 2728764

**ACCESSORIES**
- micro:bit go
  - 1 micro:bit, a USB cable, battery holder, 2 AAA batteries, and a Quick Start Guide.
  - Order Code 2728765

**FREE CODING ENVIRONMENT**
1. Microsoft make:code: block & JavaScript
2. Scratch: block & Python

**TEACHING MATERIALS & RESOURCES**
Free to access without registration.

**TEACHER TRAINING**
The Micro:bit Foundation have a number of partners who they work with nationally to provide teacher support via training. Visit the micro:bit Community at microbit.org/community-local.

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**Source:** microbit.org
**micro:bit accessories**

We have a growing portfolio of accessories designed to enhance and support learning with micro:bit. From add-ons for projects to advancement through curriculum, these accessories provide even more functionality to your micro:bit. With free lesson plans and project support available, these accessories help to inspire students to easily progress through beginner to advanced levels.

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**Kitronik**

**ENGAGE AND INSPIRE**

Kitronik aim to inspire and engage people of all abilities to further their knowledge of Electronics, Coding and Design by offering a well designed, well manufactured, innovative product range with free resources. They create high quality micro:bit accessories, electronic products, and resources for education and makers.

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**Batteries**

- **Battery Holder**
  - element14
  - 2×AAA battery holder for micro:bit.
  - ORDER CODE 2845434

- **6" USB B to Micro B cable**
  - element14
  - Programming/Power cable for micro:bit.
  - ORDER CODE 2845435

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**Boards**

- **BOSON Starter Kit**
  - DFRobot
  - Includes micro:bit expansion board, 8 sensor and actuator modules with cables. Lego compatible.
  - ORDER CODE 2945679

- **InventThings Board**
  - inventThings
  - Connect inventThings sensor boards to a micro:bit and start programming in Python.
  - ORDER CODE 2846905

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**Expansion Boards**

- **micro:bit Expansion Board**
  - DFRobot
  - Enables compatibility with DFRobot Boson and Gravity modularized electronic blocks.
  - ORDER CODE 2946133

- **micro:bit Click board adapter**
  - Mikroelectronika
  - Comes with 2 mikroBUS sockets.
  - ORDER CODE 2931435

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**Connectors**

- **Right Angle Edge Connector**
  - element14
  - Right angled edge connector for micro:bit.
  - ORDER CODE 2845436

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**Cables**

- **MBIT-WEARIT element14**
  - micro:bit Click board adapter with 2 microBUS sockets.
  - ORDER CODE 2931435

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**Other Accessories**

- **MBIT-WEARIT**
  - element14
  - Everything you need for your first wearables project. Including a battery case and wrist strap.
  - ORDER CODE 2832540

- **Battery Enclosure Multicomp**
  - A case designed to house the micro:bit Go via clip-in grooves. No screws required.
  - ORDER CODE 2728769

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**Kits**

- **Inventor’s Kit Kitronik**
  - This is the blue version MeArm and is an easy-to-build robot arm kit that’s designed to get children (and adults!) learning about technology, engineering and programming. It’s been expertly designed to be easy to build and use. Code with the Microsoft MakeCode Blocks & Javascript editor, as well as microPython.
  - ORDER CODE 3021730

- **MeArm Robot Arm Kit Kitronik**
  - The blue version MeArm and is an easy-to-build robot arm kit that’s designed to get children (and adults!) learning about technology, engineering and programming. It’s been expertly designed to be easy to build and use. Code with the Microsoft MakeCode Blocks & Javascript editor, as well as microPython.
  - ORDER CODE 3021758

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**Micro:bit Accessories**

- **Click Adapter Mikroelectronika**
  - Micro:bit Click board adapter with 2 microBUS sockets.
  - ORDER CODE 2931435

- **Battery Enclosure Multicomp**
  - A case designed to house the micro:bit Go via clip-in grooves. No screws required.
  - ORDER CODE 2728769

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**Farnell.com**

- **micro:bit accessories**
  - > micro:bit compatible

- **micro:bit compatible**

- **micro:bit Expansion Board**
  - DFRobot
  - Enables compatibility with DFRobot Boson and Gravity modularized electronic blocks.
  - ORDER CODE 2946133

- **6" USB B to Micro B cable**
  - element14
  - Programming/Power cable for micro:bit.
  - ORDER CODE 2845435

- **InventThings Board**
  - inventThings
  - Connect inventThings sensor boards to a micro:bit and start programming in Python.
  - ORDER CODE 2846905

- **micro:bit Click board adapter**
  - Mikroelectronika
  - Comes with 2 mikroBUS sockets.
  - ORDER CODE 2931435

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**Micro:bit Accessories**

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  - ORDER CODE 2845434

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  - ORDER CODE 2931435
Kitronik accessories

To help you get the most from your micro:bit Kitronik have created a vast range of accessories and add-ons, including an extensive list of learning resources. A number of robotic applications for micro:bit have been developed and Kitronik still have more in development. Illuminate your micro:bit, game with it, connect it, wear it and take it out and about with you on the go.

**Line Following Add-On**
Kitronik
Add line following to the :MOVE mini.
ORDER CODE 3021763

**Bulldozer Add-On**
Kitronik
Lift and carry things with this :MOVE mini add-on.
ORDER CODE 3021760

**Prong Soil Moisture Sensor**
Kitronik
Monitor moisture present in soil with two conductive tines.
ORDER CODE 3021724

**KLIP HALO**
Kitronik
Breaks out GPIO pins to crocodile clip connection points. JST power connector.
ORDER CODE 3021714

**Edge Connector: Assembled**
Kitronik
Breakout board to connect additional circuits and hardware to GPIO pins.
ORDER CODE 2563845

**:GAME ZIP 64**
Kitronik
Handheld gaming. 64 (8×8) individually addressable full colour ZIP LED, screen.
ORDER CODE 3021715

**ZIP Tile**
Kitronik
64 full colour ZIP LEDs. Includes 3 expansion ports.
ORDER CODE 3021726

**ZIP Halo**
Kitronik
24 individually addressable full colour LEDs.
ORDER CODE 3017549

**:KLEF Piano**
Kitronik
Capacitive piano keys with an integrated speaker.
ORDER CODE 3021720

**Prototyping System**
Kitronik
Gives access to the pins on the bottom of the micro:bit
ORDER CODE 2563850

**Motor Drive Board**
Kitronik
Motor driver board for micro:bit designed to drive 2 motors.
ORDER CODE 2563846

**16 Servo Driver Board**
Kitronik
A comprehensive driver board capable of driving up to 16 servo motors simultaneously.
ORDER CODE 3021755

**Create Proto Board**
Kitronik
Create prototype circuits using surface mount and/or conventional components.
ORDER CODE 3021721

**Servo:Lite**
Kitronik
Allows 2 servos to be driven simultaneously with 5 addressable LEDs.
ORDER CODE 3021767

**Klimate Board**
Kitronik
Development board with environmental sensors and RTC.
ORDER CODE 3021722

**Mi:pro Protective Case**
Kitronik
Orange protective casing with battery holder for micro:bit boards.
ORDER CODE 3021746

**Noodle Cable**
Kitronik
1m flat white anti-tangle USB-A to Micro-B Noodle Cable for micro:bit
ORDER CODE 3021741
**BinaryBots**

**Planet Hex**

**Planet Totem**
Build your very own robot in a few simple steps. Each kit comes as a flat-packed robot with glossy stickers, easy to follow instructions and extra sensors.

**Beginner / Intermediate**

**SAM Labs**

**STEAM Kit:**
- **Team Size**
  - SAM Labs
  - Order Code: 2886646
- **Classroom Size**
  - SAM Labs
  - Order Code: 2886647

**STEAM Kit:**
- **Alpha Size**
  - SAM Labs
  - Order Code: 2886650

**Maker Kit**
- SAM Labs
  - Order Code: Please Call

**Build your very own robot in a few simple steps. Each kit comes as a flat-packed robot with glossy stickers, easy to follow instructions and extra sensors.**

**Meet DIMM**
ORDER CODE 2886646

**Binary’s UFO**
ORDER CODE 2886647

**Totem Spider**
ORDER CODE 2886648

**Totem Crab**
ORDER CODE 2886649

**Totem Tortoise**
ORDER CODE 2886650

**BinaryBots**

**FUN AND ENGAGING**
Children love to make things. Combining a real robot with coding fires up a child’s imagination, inspires dreams and builds confidence. Full curriculum and lesson plans are available for all BinaryBots kits, including comprehensive lesson plans mapped to the UK National Curriculum for Computing and STEM (KS2 & KS3) for schools.

**farnell.com/binarybots**

**SAM Labs**

**INTERACTIVE AND FUN**
SAM Labs seamlessly connects software and hardware with lesson plans that cover a wide variety of subjects, making learning about coding accessible, experimental, interactive and fun. With Bluetooth connectivity, each block can connect to the others via the app to do something different. By using logical reasoning to write algorithms, incorporating variables, input and outputs, students will learn to control and simulate physical systems, bringing computational thinking to life.

**farnell.com/sam-labs**

**Build your very own robot in a few simple steps. Each kit comes as a flat-packed robot with glossy stickers, easy to follow instructions and extra sensors.**

**Make the most of your lessons with tools and support from SAM Labs, including curriculum-aligned lesson plans, visual flow-based apps and wireless electronic blocks.**
**CodeBug**

**FUN, PROGRAMMABLE, WEARABLE**

*CodeBug* is a little device that you can wear and learn to program. It was designed to introduce simple programming and electronic concepts to anyone, at any age. Learn how to code in three simple steps: create, download, transfer. Program CodeBug easily by using the online interface, which features colourful drag and drop blocks, an in-browser emulator, and engaging community features.

*CodeBug* AGER 6+

So simple, you can create your first program in under a minute! It has 25 LED lights in a 5×5 grid, 2 push buttons, and 6 touch sensitive "legs" that can be used as inputs or outputs for you to interact with. Get started with one of the many free step-by-step activities for beginner, intermediate and advanced levels.

**farnell.com/codebug**

Learn and develop computational thinking skills with CodeBug’s free online activities, courses and curriculum.

**Wonder Workshop**

**SPARK CREATIVITY**

By putting the power of play into the hands of students, Dash and Cue encourage skill development and the building of self-confidence in all abilities from beginners to advanced learners. These robots are charged and ready to go straight out of the box, responding to voice, navigating objects, dancing and singing.

*Wonder Workshop* AGER 6+

Choose from four unique avatars to customize Cue with a personality that's right for your classroom. Engage in witty chat with Cue, use the Cue app to control movements, create reactive sensor behaviours, or code creative interactions using block or JavaScript programming at the skill level that’s right for your students.

**farnell.com/wonder-workshop**

Teachers can easily guide students to practice and progress through Wonder Workshop’s Learn to Code and Applied Robotics curriculums.

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**Dash**

*Wonder Workshop* AGER 6+

Wonder Workshop’s standards-based lessons encourage active learning through creative problem-solving tasks that have real-world application. Seven progressive apps introduce students to a variety of ways to code and control DASH as they work through the in-app demos, challenges, and puzzles. Advance through the 72 challenge cards complementary to the Learn to Code Curriculum.

**Cue**

*Wonder Workshop* AGER 11+

Choose from four unique avatars to customize Cue with a personality that's right for your classroom. Engage in witty chat with Cue, use the Cue app to control movements, create reactive sensor behaviours, or code creative interactions using block or JavaScript programming at the skill level that’s right for your students.

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**ORDER CODE 2479888**

**ORDER CODE 2947810**

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**ORDER CODE 2947809**

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**MEET MARTY**

*Marty the Robot* is a fully programmable robot, designed to give kids a fun and hands-on introduction to coding and robotics. He is designed to make learning about computer science, engineering, and teamwork a fun and engaging process. Marty is also an expandable robot that grows with your students.

**Perfect for advancement within education, Marty is a useful tool for introducing beginners to programming right through to university.**

farnell.com/robotical/marty

>Marty the Robot

A fully programmable, Wi-Fi, enabled walking robot for educators, kids, and makers. Get coding with Scratch, Python, Javascript, and more. With lesson plans and suggested activities to classroom downloads and curriculum guides, Marty has everything you need to get up and running smoothly in a classroom or code club.

ORDER CODE 2917888

Intermediate

**Robotical**

**Arduino**

**TEACHING, INSPIRING AND EMPOWERING**

Arduino Education offers solutions for the classroom, including kits, bundles, and boards with learning paths for individual and collaborative educational approaches. Students can explore Arduino in a hands-on, constructive way as they work through the kits discovering the creative capabilities of each board.

Intermediate

*Arduino*

**Arduino Starter Kit**

Arduino

The Starter Kit is a great way to get started with coding and electronics! The Starter Kit includes an Arduino Uno and all the components you need to make 15 fun projects following the step-by-step tutorials in the Project Book. Available versions: English, Italian, French, Spanish, Deutsch, Japanese, Chinese, Korean.

ORDER CODE 2250862

**Arduino Engineering Kit**

Arduino

Bring the power of the Arduino MKR1000 to the classroom with MATLAB & Simulink. With three advanced projects that include key aspects of mechatronics and programming this kit is the ideal solution to learn fundamental engineering concepts. It provides a state-of-the-art, hands-on incorporation of Arduino technology in an educational setting.

ORDER CODE 2851780

**MKR IoT Bundle**

Arduino

The MKR IoT Bundle is a great way to get started with the Internet of Things! This bundle includes all the components you need to make 5 IoT projects following the step-by-step online tutorials. Based around MKR1000 boards students learn to add connectivity to designs with minimal prior networking experience.

ORDER CODE 2830996
Intermediate

DFRobot

COMPREHENSIVE LEARNING KITS

DFRobot create world-leading robotics and open source hardware catering to future creators. They continually produce innovative, user-friendly hardware & software products that become the building blocks in all kinds of electronic projects, working to reshape STEM education with their mission to teach more people to make.

farnell.com/dfrobot

Gravity Series Sensor Kit

DFRobot

These kits include a range of basic sensors including light, touch, temperature, magnetic, vibration, tilt, LED lighting module, Grayscale sensor, a big button, and more. Connect to Arduino using DFRobot’s IO Expansion Shield V7.1. Connect to micro:bit using DFRobot’s micro:bit Expansion Board.

ORDER CODE 2946131
ORDER CODE 2946111

Analog Electrical Conductivity Meter

DFRobot

A kit for measuring the electrical conductivity of aqueous solutions and evaluate water quality. With plug-and-play design, intuitive software library and support for 3.3V/5V microcontrollers it can be a simple and effective measuring solution. The software library uses two-point calibration method, temperature compensation algorithm and automatically identifies standard buffer solution.

ORDER CODE 2946108

Arduino I/O Expansion Shield V7.1

DFRobot

Colour coded for sensor and actuators input and output. 3-pin format for signal, voltage and ground. Includes power input for salvaged/slab power supplies and Xbee socket for multipurpose wireless connectivity. Includes voltage hardware setting through a jumper allowing compatibility with a range of 3.3V components like Arduino, Raspberry Pi and others.

ORDER CODE 2946070

DFRobot create comprehensive learning kits of electronics and DIY robots for schools across the globe. Students can apply their learned skills and experiment with the hardware provided in the kit. These kits of Arduino/Electronics and DIY robots have been introduced to schools across the globe. The Gravity Series boards are also micro:bit compatible via the expansion board.

Infrared Motion Sensor

DFRobot

Checks for infrared heat in its detection range, comparing with a snapshot, triggering if there is a recent change.

ORDER CODE 2946113

Temperature Sensor

DFRobot

Gravity series. Detects ambient air temp between 0-100ºC with 10mV/ºC sensitivity. Output voltage proportional to temperature.

ORDER CODE 2946088

Piezo Buzzer Module

DFRobot

Simple sound making module that you can use High/Low to drive. Different frequencies create different sounds.

ORDER CODE 2946097

Infrared CO₂ Gas Sensor

DFRobot

Gravity series. Range up to 50,000ppm. UART connection for Arduino and Raspberry compatibility.

ORDER CODE 2946086

Capacitive Touch Sensor

DFRobot

Gravity series. Digital sensor with touch sensitive control. Works with anything that holds a charge.

ORDER CODE 2946096

Soil Moisture Sensor

DFRobot

Two probes pass current through soil, using the resistance to measure the amount of moisture present.

ORDER CODE 2946117

Ambient Light Sensor

DFRobot

Gravity series. Detects light density and reflects value as an analogue voltage signal.

ORDER CODE 2946085

Digital Vibration Sensor

DFRobot

Gravity series. Supply voltage range 3.3-5V. Open circuit resistance of 10Mohms.

ORDER CODE 2946090

Relay Module

DFRobot

Gravity series. Digital 5A relay module with LED for notification.

ORDER CODE 2946087

Line Tracking Sensor

DFRobot

Effective line tracking functionality for identifying white from black quickly and accurately, via TTL signal.

ORDER CODE 2946112

farnell.com/dfrobot-accessories

> micro:bit / Arduino compatible

Intermediate

DFRobot believe the seed of making and creating will grow inside our future generation, and one day they will change the world with what they make.

farnell.com/dfrobot-accessories

> micro:bit / Arduino compatible
Intermediate / Advanced

Raspberry Pi

TEACH, LEARN AND MAKE
The world’s most popular small computer, the Raspberry Pi was designed to promote the teaching of computing in classrooms around the globe. Its low cost, accessible hardware, vast ecosystem of accessories and multi-lingual teaching materials and lesson plans make this the ideal Physical Computing choice for ages 11+. Students can learn to code in a safe standalone sandbox environment, without the danger of damaging expensive hardware, losing files, resetting operating systems or associated safeguarding risks from online access.

farnell.com/raspberrypi

The Raspberry Pi 3 Model A+
Raspberry Pi
The Raspberry Pi 3 Model A+ is the latest product in the Raspberry Pi 3 range. Like the Raspberry Pi 3 Model B+, it boasts a number of equivalent features like a 64-bit quad core processor running at 1.4GHz, dual-band 2.4GHz and 5GHz wireless LAN, Bluetooth 4.2/BLE, but with only one USB port and no Ethernet, allowing for a smaller footprint and lower cost.

ORDER CODE 2946269

Raspberry Pi 4 Model B
Raspberry Pi
The latest product in the range, it offers ground-breaking increases in processor speed, multimedia performance, memory, and connectivity compared to prior-generations, while retaining backwards compatibility and similar power consumption. Available in three variations of memory capacity.

ORDER CODE 1GB 3051885
ORDER CODE 2GB 3051886
ORDER CODE 4GB 3051887

Digital Making Curriculum
Access a full curriculum created for introduction and development of the following skillsets:
- Design
- Programming
- Physical Computing
- Manufacture
- Community and Sharing

PICADeMY
A free face-to-face two-day professional development programme offered by the Raspberry Pi Foundation to support educators throughout their digital making and computing journey.

ORDER CODE 2510728

Intermediate / Advanced

MATRIX Labs

LIMITLESS APPLICATIONS
The MATRIX Platform is comprised of two Raspberry Pi compatible educational development boards, which are supported by the MATRIX software libraries. They offer limitless applications to facilitate learning of various software and hardware concepts and assist in exposing students to cutting-edge technology and the latest industry concepts, such as IoT, AI, and machine learning with C++, Python, JavaScript, and more. The MATRIX Ecosystem simplifies the learning process and enables students to easily integrate hardware, software, and AI.

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MATRIX Creator
MATRIX Labs
15 on-board sensors, microphone array, wireless communication (including Zigbee and Z-Wave), and an FPGA.
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MATRIX Voice
MATRIX Labs
A microphone array and FPGA suitable for building sounds driven behaviours and interfaces.
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Raspberry Pi accessories
Explore the latest range of HATs and accessories to extend the capabilities of the Raspberry Pi and build bigger and better projects as your class advances to higher skill levels.

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Raspberry Pi compatible

Essentials
Power Supplies
Micro SD Card (NOOBS)
Case
HDMI Cable
And more…

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BeagleBoard

SIMPONI PHYSICAL COMPUTING

BeagleBone boards are low-cost computers with the expandability of today’s desktop machines, but without the bulk, expense, or noise. BeagleBone boards simplify physical computing on advanced network enabled and GUI enabled devices. With an open source development platform, BeagleBone boards offer support for development environments from Android, QNX, Ubuntu and Windows Embedded, as well as web tools to bare metal and Arduino/Wiring-style programming.

farnell.com/beagleboard

Students can have fun while learning embedded programming, by following BeagleBone guides, viewing and creating exciting projects, and attending interactive workshops.

Pocket Beagle
BeagleBoard

The newest and smallest member of the BeagleBoard family. An ultra-tiny USB key-fob computer, PocketBeagle is incredibly low cost and very simple to use, making it the ideal development board for beginners and professionals alike.

ORDER CODE 2806159

BeagleBone Black Wireless
BeagleBoard

High-expansion board focussed on connectivity, with a high-performance WiFi module with Bluetooth. Boot in 10 seconds and start developing through a web browser in less than 5 minutes using a single USB cable.

ORDER CODE 2671597

BeagleBone Blue
BeagleBoard

An affordable and complete robotics controller with high-performance, flexible networking capabilities coupled with a real-time capable Linux system and a compelling set of peripherals. Utilise the pre-configured WiFi access point, connect a battery, open your browser and start code development immediately.

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M3-SE 3D Printer
MakerGear

With WiFi connectivity offering remote control and monitoring capabilities, this 3D printer has build dimensions of 203 × 254 × 203 mm and a web-based, easy to use interface.

ORDER CODE 2901112

Ender-3 Pro
Creality 3D

Inexpensive yet extremely capable of providing quality prints. This 3D printer is stable and smooth, as well as quiet and only takes 5 minutes to heat up. It’s patent technology reduces the risk of plugging and spillage and it has build dimensions of 220 × 220 × 250 mm.

ORDER CODE 2945489

MC-120
Multicomp

Ideal for educators, hobbyists, makers and engineers. This fully assembled 3D printer has an operating noise of under 50dB, therefore is perfect for an office. Its build dimensions are 200 × 200 × 200 mm and includes a convenient safety function by automatically shutting down once printing is complete.

ORDER CODE 2890896
Unique makerspaces

WHAT IS A MAKERSPACE?
A makerspace is a work area within a school, a library, or another public or private facility that is dedicated for making things, being creative, learning, collaborating, and sharing ideas. Every makerspace is as unique as the projects created within them. They can be filled with high tech tools and include things like soldering stations and 3D printers, or they can simply comprise of cardboard, glue, and crayons.

Makerspaces are intended to encourage creating something out of nothing, while exploring individual and collaborative interests. Providing hands on learning, these spaces help to support critical thinking skills as well as boost confidence. Some skills learnt in makerspaces relate directly to STEAM, for example robotics, electronics, coding, 3D printing, and more.

CREATE YOUR SPACE
Tools and supplies to build inspiring makerspaces and STEAM labs for children and adults alike. Create a space that will encourage collaborative working and stimulate the imagination with over 17,000 tools and supplies from leading brands.

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- Metcal
- CK Tools
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Make the most with your budget and equip your schools makerspace or STEAM lab to support a wide variety of activities. With everything required for building a class pet robot to creating an intergalactic spaceship, our large range of tool and supplies provide support for all of your students creative ideas and projects.

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Ideal-Tek
Flat round tips. 150mm length Anti-magnetic, anti-acid stainless steel body with ESD Carbonite (CF) tips.
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Scotch Multipurpose, paper cutting, 180mm with sharp, hardened stainless steel blades for cutting performance.
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The world’s largest hardware developer network with over 870,000 members in 150 countries. Hackster.io, an Avnet community, is dedicated to learning hardware, from beginner to pro. Bringing together innovators and technology partners from around the globe, Hackster hopes to facilitate the creation of solutions that make today’s world a smarter, healthier place and support the livelihood of tomorrow’s generation.

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