early years & primary
STEM bulletin

Ideas and inspiration for primary teachers and early years staff

In this edition:

Don't put micro:bit in the cupboard!
Learn where to get started with micro:bits to enhance Computing Science outcomes in your setting.

Great Science Share for School
Great Science Share for Schools is an annual campaign to inspire 5-14 year olds to ask, investigate and share their scientific questions with audiences. The aim is to raise the profile of Science in schools, encouraging young people to be inspired into STEM.
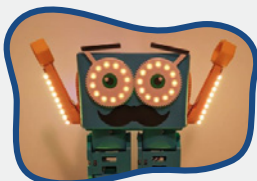
Who is Marty?
In this article we are introduced to Marty the robot and some of his new functionality.

VEX
Explore some of the VEX resources created to develop STEM learning for learners across Early Years and Primary, and find out about SSERC PL offerings for these engaging resources.

Sphero
Find out more about SSERC Sphero based professional learning and the range of available Sphero products.

Don't put micro:bit in the cupboard!

Over the past year, all primary, secondary and additional support needs schools across Scotland have been receiving twenty micro:bits as part of a Scottish Government initiative to enhance the teaching of Computing Science (CS) and Digital Literacy in Scottish Schools.
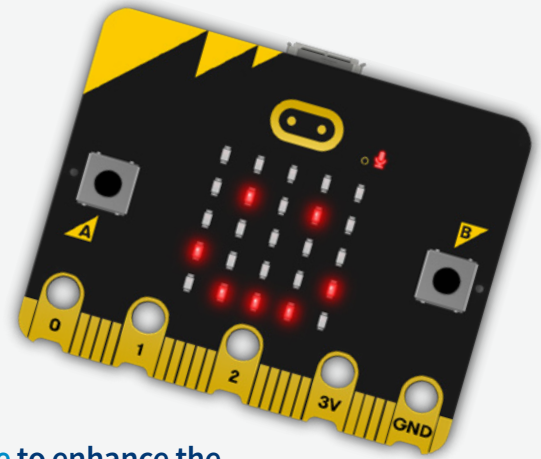
These pocket sized entry level coding devices are used across the globe, with more than 6 million devices already in use, they are an amazing tool for engaging with Computing Science concepts and approaches. Micro:bits also open the door to seamless cross curricular learning opportunities and embedding this resource alongside the accompanying learning will help enhance skills for life, learning and work such as collaboration, creativity and problem solving.

However, with some of the main barriers to teaching Computing Science being a lack of staff confidence and training opportunities, there is the temptation for these brilliantly versatile devices to be put aside or even placed in what many teachers label 'the cupboards of doom'!

In this article we will explore a few options to get you started with your micro:bits, signposting some of the resources freely available to help gain confidence and to begin engaging with micro:bits in your setting.
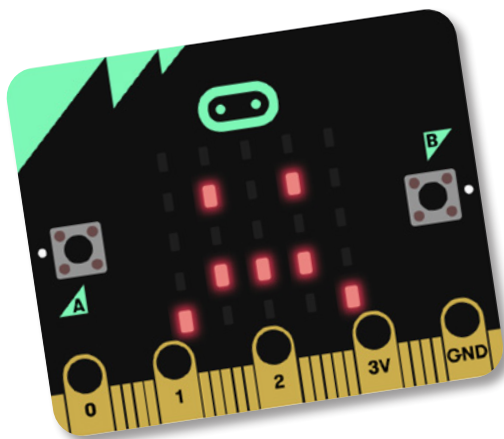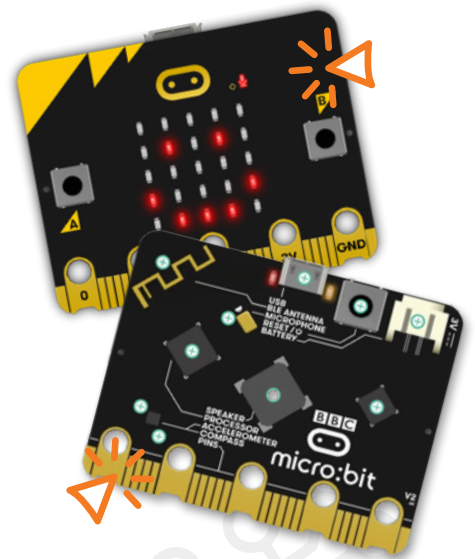
Introduction to the BBC micro:bit
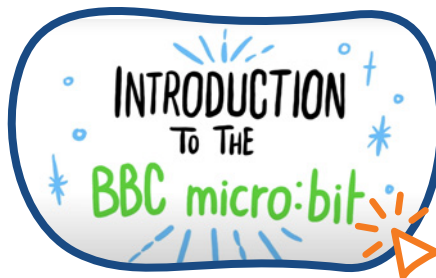
On the micro:bit website, you can find useful animated videos, like this introduction, related to all of the different functions of your micro:bit.

If you are looking to explore the micro:bit and you have access to a brand new micro:bit, it is pre-programmed with the 'out of the box experience', which is a showcase style program promoting some of the functionality of a micro:bit. Find out more here:

It is well worth getting a more detailed insight into the micro:bit and all of the features of the physical device in order to expand your knowledge of what it can do. We have created several Thinglinks to guide you through some of these features, as well as offering pertinent projects from the micro:bit website to try:

If you are looking to explore even more projects developed around the micro:bit features, then the user-guide is a great place to explore (see above).

Keeping it simple with the micro:bit

To use the micro:bit you will require the hardware (the micro:bit) and also a device, such as an iPad/Chromebook/laptop, to run the MakeCode software. MakeCode is the coding environment used to develop programs for the micro:bit.

The micro:bit is compatible with most devices although there are differences between how you would use these. To find out more about the different devices and how these interact with the micro:bit, you can click on the link to a Sway below.

The Micro:bit Education Foundation have developed an amazing, yet accessible, array of tools to help overcome some of the barriers facing educators when considering Computing Science; creating an infrastructure to support staff and learners at all skill levels. This ensures you begin at a point where you feel comfortable and not instantly overwhelmed.

In this section we will consider how we 'Keep it Simple' by looking at the best places to start for those new to micro:bit and who may be lacking knowledge or confidence, exploring activities that require only the micro:bit and a device to use it with.

There are the two main websites available to support, taking very different approaches to engaging with micro:bit:

1) The official micro:bit website which focusses on 'Projects'

2) The MakeCode website from Microsoft which focusses on 'Tutorials'.

To find out more about these websites and the differences, you can click on the image below:


Both sites are perfect places to start your micro:bit journey and provide support networks to grow familiar with the micro:bit itself and the MakeCode coding environment.

You may find that learners will be very keen and quick to explore all of the functions and features available. However, it is essential that the core CS concepts are taught in conjunction with the micro:bit sessions.

Danger! Remember the CS Concepts and skills

There is a real danger with micro:bit that you can easily use the online infrastructures to empower the learners to create programs and engage with micro:bit, without ever having taught any of the CS concepts or skills along the way.   **>>**

Using micro:bit With Your Devices

Connecting the micro:bit to your device
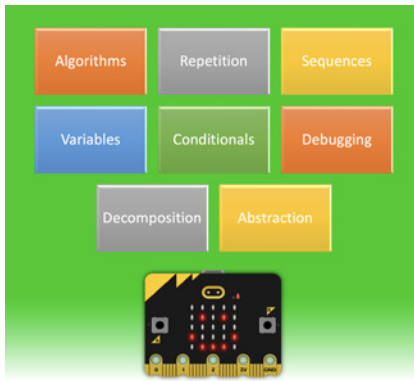
The Experiences and Outcomes, CfE Early to Second level, focus on Computing Science concepts and approaches such as algorithms, repetition, selection, debugging and decomposition, which can all naturally be taught using the micro:bit.

If teaching some of these concepts with micro:bits initially seems a bit daunting, you could try engaging in some simple unplugged sessions to enhance learner understanding. The previous digital edition of the Early Years and Primary STEM bulletin may help with this.
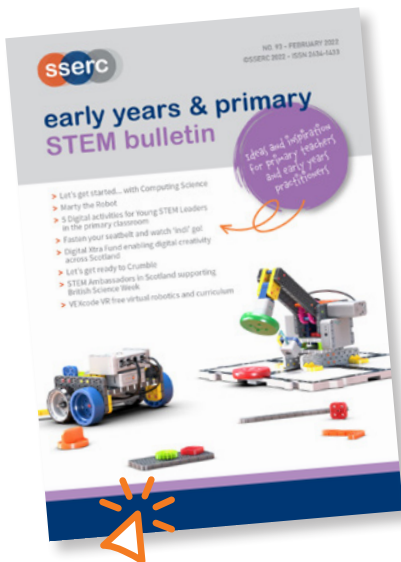
If you are keen to get started with micro:bits but are lacking confidence in teaching CS concepts and approaches, engaging with a program such at the 'micro:bit – Introduction to Computer Science' would be worth investigating.

The first 6 units focus on the following CS concepts:
• Algorithms
• Variables
• Conditionals
• Repetition

and provide step by step guides on how to teach these concepts alongside your micro:bits.

You can download the course in a variety of formats here:

Conclusion
Hopefully this article has given you enough information and guidance to get started using your micro:bits within your setting.

SSERC have had delegates attend our SSERC Digital micro:bit courses who started with no knowledge of micro:bit, but have since become digital ambassadors across their school and beyond.

The beauty of micro:bit is that the support infrastructure is there for beginners, and can be used by all, but there are also unlimited possibilities with this pocket sized computer.

Get started and give it a go, don't be afraid to learn alongside your learners; their enthusiasm will no doubt prove infectious.

Whatever you do, don't put micro:bit in the cupboard!

Please get in touch if you have any questions relating to this article or opportunities to learn more about micro:bits

Contact
Kevin Reid - kevin.reid@sserc.scot
Early Years & Primary Education Manager for Digital Skills & Computing Science. micro:bit Champion 2023.
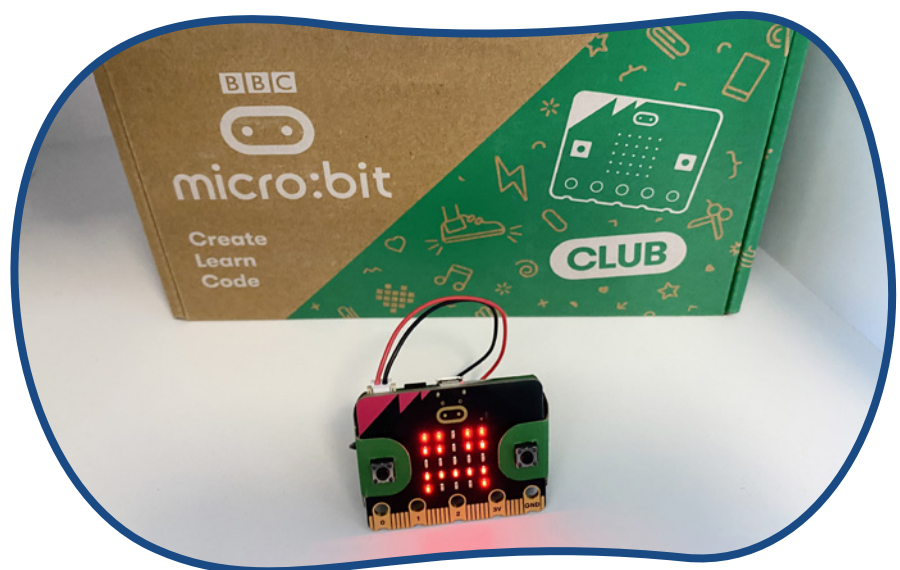
Great Science Share for Schools

SSERC are delighted to be Great Science Share for Schools Champions once again in 2023. We are pleased to be able to share the latest update as we build up to the campaign celebration on Tuesday 13th June! Do not worry if you can't take part on the day as you can take part in Great Science Share for Schools at your convenience.

What is the Great Science Share for Schools?

Great Science Share for Schools (GSSfS) is an award-winning campaign, first launched in 2016. It inspires 5-14 year olds to **ask**, **investigate** and **share** the scientific questions that really matter to them and improves learners' opportunities to work scientifically. GSSfS has gone from strength to strength, reaching over 720,000 learners in previous years and being picked up in 28 countries worldwide.

Young people are curious about the world around them, and rightly so. Great Science Share for Schools gives them the opportunity to engage in learner-led enquiry. Learners will work like scientists to find answers to the scientific questions they are interested in, questions they really care about.

Great Science Share for Schools has an annual, optional theme and this year, '**Science Around Us**' encourages learners to ask questions about a range of issues: anything from climate change, to the food they eat, to the animals living in their local area. Learners will investigate and share their science with others. But how?

Share!

The 'share' element can take many forms but the important aspect is that learners are given the opportunity to communicate with others. They could produce and present a presentation to other learners or adults. They could produce posters, factsheets or leaflets. Learners could use their media skills to script and film videos, songs or even raps. There really is not a standard way of sharing – be as creative as you like!

Great Guided Enquiries for 2023

For 2023, Great Science Share for Schools have launched three brand new Great Guided Enquiries linked to the theme 'Science Around Us'. These curriculum-linked resources have been designed to develop enquiry skills and encourage learners to ask questions to prompt future investigation. To encourage awareness of science surrounding global issues, all Great Guided Enquiries are linked to the Global Sustainability Development Goals. The enquiries provide a valuable opportunity for learners to apply their previous learning of key concepts. As such, they are ideal enrichment opportunities, and a chance for you to review whether learners have grasped the learning and can apply it to new contexts.

PHYSICS
Great Glider Share

Supported by The Ogden Trust, these physics resources bring the context of flight into the classroom.

This enquiry is inspired by the new text 'Gary Vity' by Jules Pottle; the story of a young girl called Rosa who is curious about the world around her.

The enquiries take this beautiful story as a stimulus and develop learners' understanding of key scientific concepts including forces and materials whilst demonstrating the ways in which engineers work. Dr Ben Parslew, an aerospace engineer from the University of Manchester, works alongside Jules to set the scene for age appropriate enquires where learners get to build and test gliders.

5-7 years olds can undertake comparative tests to establish what is the best material to use for a glider wing. 7-11 year olds can pattern seek to determine if the way they make the glider affects how far it travels. **>>**

11-14 year olds will hear from Ben how important it is to consider flights in a sustainable world. They will look at how changing the position of a ballast weight has an impact on the distance the glider travels.

There is a suite of resources for each age group, including a video of Jules narrating 'Gary Vity', videos to set the enquiry, teacher notes, accompanying slide decks and construction instructions and a template to make the gliders.

BIOLOGY
Great Gather and Group
In collaboration with The Linnean Society, the new biology Great Guided Enquiries enable learners to learn about plants and classification in a unique way. By learning about mushrooms, learners will dig deep into thinking about what are the characteristics by which we classify a plant as a plant.

5-7-year-olds are encouraged by way of an observational enquiry to investigate a variety of plants using observing, grouping and classifying skills to decide whether mushrooms are plants.

'Can we identify and classify living things around us?' This is the question being asked in the enquiry for 7-11 year olds. Learners will get outdoors and observe living things, ask questions about what they find, and look at how mushrooms and different types of fungus are similar and different. They work scientifically by classifying and justifying their reasoning.

11–14-year-olds will identify and explain how mushrooms have similarities, and differences, to other species. In a practical activity, they explore the growth and management of fungus using yeasts and agar plates, considering the implication on fungal growth in a sustainable society to answer the question 'Is there much room for mushrooms in our future society?'

There are video clips and teachers' notes to support each of the three age groups.

CHEMISTRY
Great Glass Share
With support from PSTT and The Worshipful Company of Glass Sellers, the Great Glass Share consists of two enquiries linked to materials and chemistry. Both enquiries have strong links to sustainability and climate issues, bringing a real-world context for learners to consider.

5–7-year-old learners explore possible solutions to the melting of the polar ice caps, drawing on knowledge of polar habitats and the implications of climate change for animals living there. They make

observations over time to explore the effect of glass on melting times. This enquiry takes inspiration from the 'Arctic Ice Project' in which researchers are looking at the effect of adding a thin layer of tiny, hollow, glass beads to protect the ice caps. Learners will mirror the research to see whether glass beads might reflect sunlight and reduce melting.

7–11-year-olds are challenged to answer the question 'Are double glazed windows more effective than single?' Learners gather data in a comparative test to analyse the thermal properties of a single layer of glass in comparison to a double layer and develop skills in measuring and analysis of data to answer scientific questions. The enquiry inspires curiosity about glass being used in contemporary innovations to save energy, supporting climate action. There is a suite of resources supported by a PowerPoint and teacher notes for both age groups. >>

The Great Science Poetry Share

From Creative Manchester, in partnership with Great Science Share for Schools, comes an opportunity to share science creatively. Be inspired and release your inner poet! Sharing science is an opportunity to exploit a wide range of mediums. Crossing the curriculum into literacy is a great way to inspire young people to think differently about their scientific questions. Make the most of learners' creative writing to communicate their thinking and ideas about Science Around Us. Age-appropriate video prompts are on the GSSfS website.

The Wonder Box (5-7 poetry prompt) asks you to think about what make learners wonder. What makes them think 'wow'?

Microscope, Telescope (7-11 poetry prompt) challenges learners to imagine that they are an explorer - discovering something in the world around them for the very first time. Learners are asked to think about the words they choose and how language is like a microscope or telescope that zooms in to help us look closely and observe our world in higher focus.

Golden Record Poem (11-14 poetry prompt) builds on the 'Golden Record' which scientists in the 1970s sent into outer space. The Golden Record had all kinds of things from Earth recorded on it – pictures of people, recordings of music, the sound of rain and birds and animals. This Golden Record poem prompt inspires learners to write a poem that could be sent into space on their own 'Golden Record' to give a glimpse of life back on Earth.

There is the option for schools, regardless of location, to submit their poetry to Creative Manchester's Micropoetry Competition running until June 2023. Learners have the chance to submit their poetry via an uploader on the GSSfS website or they could enter the Creative Manchester competition.

If you want to know more about the campaign
- You can visit the campaign website – or follow us on Twitter @GreatSciShare to learn more.
- **Sign up for free** – follow the link to our website to be part of the GSSfS Community and receive regular updates, information and resources.
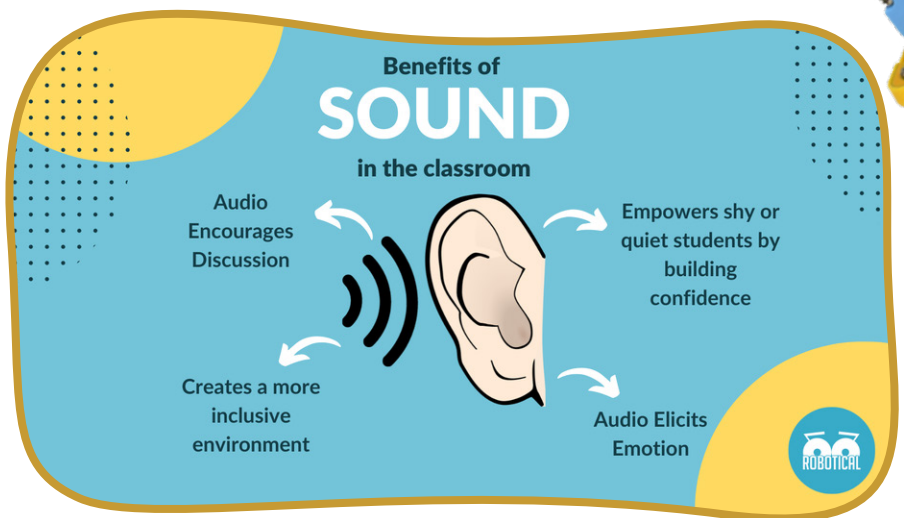
Scan here to register for GSSfS

Who is Marty?

Marty the Robot is a fully programmable and customisable robot, designed to bring learning to life in every classroom. As the best value-for-money humanoid robot on the market, Marty's unique functionality has supported teachers in igniting a passion for learning and engaging all learners in the world of STEM since 2017. Controllable through nine individual motors, Marty teaches through play and as Marty can walk, dance, turn, lean and kick a ball – it's the perfect classroom companion!

And Marty's just getting better! What's new for 2023?

The Robotical team have been working tirelessly behind the scenes to bring you Marty's new drag-and-drop sound blocks. This latest addition to the MartyBlocks coding environment (based on Scratch) allows learners to expand their creativity, get even more technical and will add extra personality to every robot.

MartyBlocks is now packed with a massive selection of wacky and wonderful sounds, new pitch and volume options and phenomenal recording features. Coders can even adjust Marty's accent and play a variety of musical instruments through their physical robot.

Benefits of SOUND in the classroom

- Audio Encourages Discussion
- Empowers shy or quiet students by building confidence
- Creates a more inclusive environment
- Audio Elicits Emotion

On top of that, every Marty the Robot is now delivered with pre-installed LED eyes. Programmable in every colour under the rainbow, these lights are the perfect addition to the robots and will add a pop of colour and sparkle to every lesson.

Not to mention, this new addition will also allow teachers to take advantage of Robotical's disco eye lessons, expanding learners' knowledge of LEDs and lights, testing learners to program different colours as reactions and allowing learners to explore different patterns and timing orders.

What do learners learn with Marty?

Marty the Robot is a classroom tool that can be used right across the curriculum. With a vast library of curriculum-linked lessons and resources, Marty promotes a variety of skills in learners without them even noticing - they just learn while having fun!

From problem-solving and creative thinking to teamwork and leadership skills, Marty goes above and beyond to help deliver STEM subjects (and more) in an accessible, interactive and engaging way. **>>**
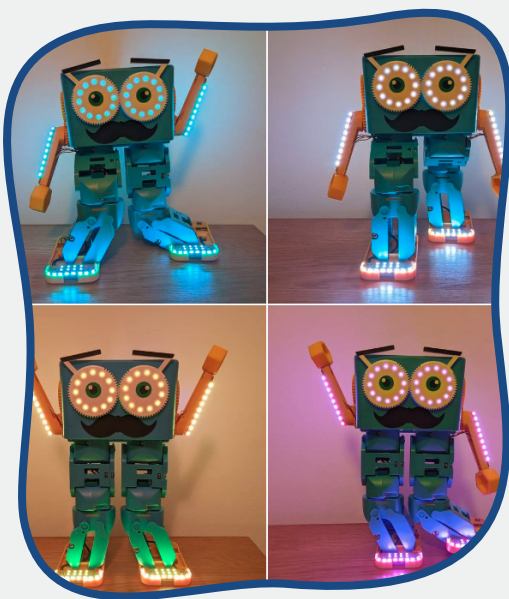
Marty teaches many valuable and transferable skills. Take maths for example: recent research suggests that coding can help with maths engagement and attainment. Coding and maths are very much related, and when learners learn to code, they are also applying numerous mathematical principles and as such developing strong mathematical thinking skills. For instance, when coding Marty on Robotical's various platforms, learners are challenged to test out conditionals, loops, and distances/measurements. Marty can bring abstract concepts like fractions and angles to life.

Grasping abstract maths concepts can be challenging for many and may even put some learners off the subject entirely. With Marty, learners learn by play and as such can visualize complex notions and develop skills in an exciting way. Why not check out Robotical's maths lessons and see for yourself?

New Coloured Programming Tiles

Robotical's new Coloured Programming Tiles are now available with all Marty class pack orders. These are super durable and designed specifically for the classroom. They can be used for unplugged, or screen-free, coding in early years, but also with more advanced functions in MartyBlocks (block coding environment based on Scratch) later on in primary and even in secondary schools.

Want to try Marty in your class?

Robotical is offering FREE two-week trials to all Scottish schools. They'll even cover shipping and collection costs and provide virtual training for teachers. <<

Sign up for your free trial today!

Coloured Programming Tiles

Marty V2 course...

Following the success of our first Marty V2 course, run in partnership with Robotical, the link is now live for application to this course. Find out more by clicking on the Marty image to the left.

A two day course comprising:
- Monday 5th February 2024 – in person at SSERC HQ
- Monday 11th March 2024 – live remote session via MS Teams

VEX

SSERC and VEX have collaborated since 2018, offering professional learning (PL) opportunities to Scottish education settings and providing VEX resources to schools, enhancing STEM and Computing Science experiences for learners.

VEX PL COURSE DATES

In the next academic year, SSERC Digital will be expanding these offerings, having Enthuse funded professional learning for VEX GO and VEX 123.

Find out more below and by clicking on each image:

VEX GO

A two day course comprising:
- **Monday 5th February 2024** – in person at SSERC HQ
- **Monday 11th March 2024** – live remote session via MS Teams

VEX 123

A two day course comprising:
- **Friday 9 February 2024** – in person at SSERC HQ
- **Monday 18th March 2024** – live remote session via MS Teams

VEX product range

The VEX product range is quite extensive as illustrated in the next number of pages.

While our current professional learning offering links to VEX GO and VEX 123 we have exciting plans for future VEX professional learning offers. **>>**

VEX.123

Coding Starts Early for Ages 4+

VEX 123 is an interactive, programmable robot that takes Computer Science and Computational Thinking off of the screen and brings them to life.

1

Touch and Go
The 123 Robot can learn sequences by simple touch. Control movements and sounds to learn basic logic and problem solving.

Introduce **sequence** and the concept of **algorithms** by entering commands via the touch buttons on the top of the robot.

2

No Devices? No Problem!
The 123 Robot is programmable without a computer. Using the VEX Coder and physical Coder cards, you can learn real programming away from screens.

Take **sequencing** to the next level, introduce **selection** and use basic **loops** with the Coder and Coder Cards.

3

Powered by Scratch Blocks
VEXcode 123 — available for tablets, Chromebooks, Mac and Windows devices — allows you unlock the full power and capabilities of your 123 Robot

Use Scratch blocks to create powerful programs using **sequence, selection, iteration, variables** and more!

Free STEM Labs and Activities
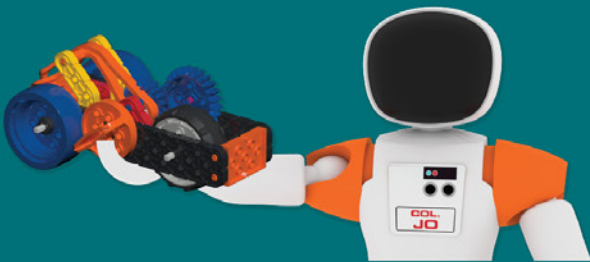
Our free STEM Labs lesson plans and Activities cover all aspects of STEM and incorporate other key subjects such as English and Art. They contain everything a teacher needs including handouts, presentations and videos. No prior STEM teaching experience is required to deliver rich lessons with VEX 123.

Mapped to **National Curriculum** and **Scottish Benchmarks**

123.vex.com   01925 251038   eusales@vex.com

Clutter-Free Classroom

Classroom organisation starts with having the right storage solutions. VEX 123 Classroom Bundles come with custom carry cases, bins, and a 6-Port USB charging box giving schools the freedom to move resources easily from class to class.

VEX 123 Kits

Start your VEX 123 journey with one of our kits, ready to be programmed 3 ways!

Includes:

- (1) 123 Robot
  (Your Choice of Red, Green, or Blue)
- (1) 123 Coder
- (1) Robot Art Ring
- (1) USB Charging Cable
- (1) 123 Coder Cards (50-pack)

£109.99

123 Field

- Add a 123 Field to enhance activities
  £24.99

Classroom Bundle Contents

Bundle Size	Small Classroom	Classroom	Large Classroom
# of Students	12	24	36
Robots	6	12	18
Coders with Batteries	6	12	18
Coder Cards (50-pack)	7	14	21
Fields (4 tiles, 8 walls)	3	6	9
Carrying Cases for everything	1	2	3
Charging Station and AC Adapter	1	2	3
Coder Card Storage Boxes	1	2	3
Robot Art Rings	6	12	18
Coding Posters	1	2	3
	£799.99	£1,524.99	£2,174.99

All VEX 123 Classroom Bundles are delivered free of charge to UK mainland addresses.

Simple, Yet Feature-Rich Robot

Touch Buttons for easy, device-free programming

Bluetooth to quickly connect with the 123 Coder or your own tablets, Chromebooks and computers

Integrated sensors ensure accurate movement and turns

Built-in rechargable battery

Eye Sensor detects objects, colour and light level

Robot Play Spaces Reinvented

Developed with your classroom in mind, VEX 123 Fields offer a flexible and safe area to use your 123 robots.

- Quick to assemble and disassemble
- Configure to any size and shape
- Markings represent 1-unit of 123 robot movement to help students understand the robot's movement
- Can be marked with drywipe pens and easily cleaned

Free Training | Free Lesson Plans | Free Software

Instant answers to almost any question at **help.vex.com**

123.vex.com

VEX GO Classroom Bundles

VEX GO Classroom Bundles are the perfect solution for individual STEM classrooms or for sharing resources between multiple classrooms and year groups. The bundles contain everything needed: multiple kits, spare parts, chargers and a storage solution that makes it easy to keep everything together or move from classroom to classroom.

GO Kit

VEX GO Kits are pre-sorted into a convenient reusable carrying case which keeps the parts organised and easily accessible

Includes:

- (1) Robot Brain
- (3) Motors
- (1) Battery
- (1) Switch
- (1) Eye Sensor
- (1) LED Bumper
- (1) Electromagnet
- (1) USB Cable
- (1) Tile

- (1) Pin Tool
- (220) Structural Parts
- (53) Motion Parts
- (1) Astronaut Figure
- (2) Storage Cases

£179.99

Classroom Bundle Contents

	Small Classroom	Classroom	Large Classroom
# of Students	10	20	30
Carrying Cases for Kits	1	2	3
Go Kits + Storage, Field Tile	5	10	15
Spare Parts Bin + extra parts	1	2	3
Charger for all 5 batteries	1	2	3
Carrying case for fields, walls	1	2	3
Walls for the classroom Field	12	24	36
Extra Pin Tools	5	10	15
Parts Posters	1	2	3
	£1,049.99	£1,999.99	£2,849.99

All VEX GO Classroom Bundles are delivered free of charge to UK mainland addresses.

# Simple, flexible, programmable

Brain
Connect via Bluetooth to a tablet, Chromebook, Windows or Mac device to code using VEXcode GO. Built in gyro and accelerometer to help your robots move with precision!
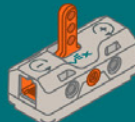
Motor
Each kit contains 3 motors to bring your creations to life and give your robots accurate movement

LED Bumper
An input and output in one! Detect when the bumper is pressed and control the colour of the light!

Electromagnet
Collect and drop the Disks included in all VEX GO kits using the Electromagnet
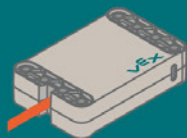
Battery
Essential for any VEX GO build that includes electronics. Recharge via the USB-C connector

Switch
Control a motor or the LED Bumper without the need to code by connecting them to a battery via the Switch.

Eye Sensor
Detect the proximity of objects, their colour and light level using the Eye Sensor

Free Training | Free Lesson Plans | Free Software

Instant answers to almost any question at **help.vex.com**

go.vex.com

vEx IQ®

Ages 11+

Applied STEM Learning for Ages 11+

The VEX IQ Education Kits and Classroom Bundles contain all the STEM hardware needed while educators get professional development, curriculum, and support. The VEX IQ Ecosystem promotes high-quality STEM education that is essential, relevant, and continual.

Organised Storage

VEX IQ kits come packaged in storage bins where every part has its own dedicated location. Visual labels inside each bin keep everything organised and easily accessible.

Complete STEM Solution

STEM Labs make teaching integrated STEM easier than ever before by engaging students with project-based learning whilst utilising the motivational effects of educational robotics.
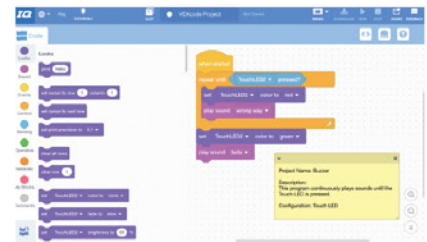
Coding for Everyone

VEXcode IQ brings Robotics and Computer Science to life for students at all skill levels. Choose between three different coding languages: Block- based, Python, and C++.

## Free STEM Labs and Activities
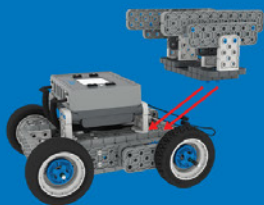
VEX IQ STEM Labs function as "plugin" lessons that can fit into your existing curriculum. Multiple labs can be utilised in sequential order to create a unique, extended learning experience. STEM Labs promote collaboration and exploratory learning and contain everything teachers need to deliver rich STEM lessons.

Students enjoy hands-on-learning activities that allow them to apply technology, science, maths and engineering skills as they enjoy a 21st-century learning experience.

STEM Labs have something to offer for everyone.

Mapped to **National Curriculum** and **Scottish Benchmarks**

VEX IQ Competition
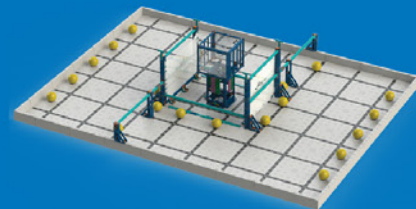
In the VEX IQ Competition teams of students are tasked with designing, building and coding a robot to play with other teams in a game-based engineering competition. Classroom STEM concepts are put to the test as students learn lifelong skills in teamwork, leadership, communications, and more.

VEX Robotics hosts the world's largest robotics competition for students all over the world to compete against one another using a robot of their own design. Teams can compete regionally, nationally and internationally at both in-person and remote events.

Find out more at **roboticseducation.org/vex-iq**

iq.vex.com   📞01925 251038   eusales@vex.com

VEX IQ Classroom Bundles

The driving concept behind 21st century classroom design is flexibility. VEX IQ Kits, storage, fields, and game objects work together to make the teacher's job easier.

Classroom Bundles are the perfect solution for individual STEM classrooms. Bundles come in three sizes and include robot kits, extra parts, classroom charging, game field and game elements so you can bring the excitement of competitive robotics to your classroom.

VEX IQ Education Kit

The IQ Education Kit makes STEM manageable for teachers and fun for students! Every part in the kit has its own dedicated location with labels packaged in two storage bins

Includes:

- (1) Robot Brain (2nd Generation)
- (1) IQ Robot Battery (Li-Ion, 2000 mAh)
- (1) Controller (2nd generation)
- (1) Distance Sensor (2nd generation)
- (1) Optical Sensor
- (4) Smart Motor
- (1) Touch LED
- (1) Bumper Sensor
- (9) Smart Cables
- (1) Pin Tool
- (1) USB-C Cable
- (2) Storage Cases
- (5) Storage Jewel Cases
- (1036) Plastic Construction Parts

£349.99

Classroom Bundle Contents

	Small Classroom	Classroom	Large Classroom
Number of Students	10	20	30
VEX IQ Education Kits (2nd gen)	5	10	15
STEM Games Field Tiles	12	24	36
STEM Games Field Walls	16	32	48
STEM Games Objects	18	36	54
Parts Posters	1	2	3
Extra Pin Tools	5	10	15
Classroom Charger (5 USB-C ports)	1	2	3
Spare Parts with Storage	1	2	3
	£1,949.99	£3,899.98	£5,849.97

All VEX IQ Classroom Bundles are delivered free of charge to UK mainland addresses.

Simple. Flexible. Powerful.

Brain
Connects your entire robot together and includes a colour screen for quick and easy control

Battery
Uses Lithium-ion technology to provide all-day classroom usage in most situations, and includes a button for quick battery charge indication

Controller
Enables wireless robot control and wireless code download

Smart Motors
Make your robots come to life with powerful and precise movement

Bumper Switch
Allows the robot to feel when it hits a wall or another robot and can be used as a limit switch

Touch LED
Provides human touch input to the robot and colour output to human eyes

Optical Sensor
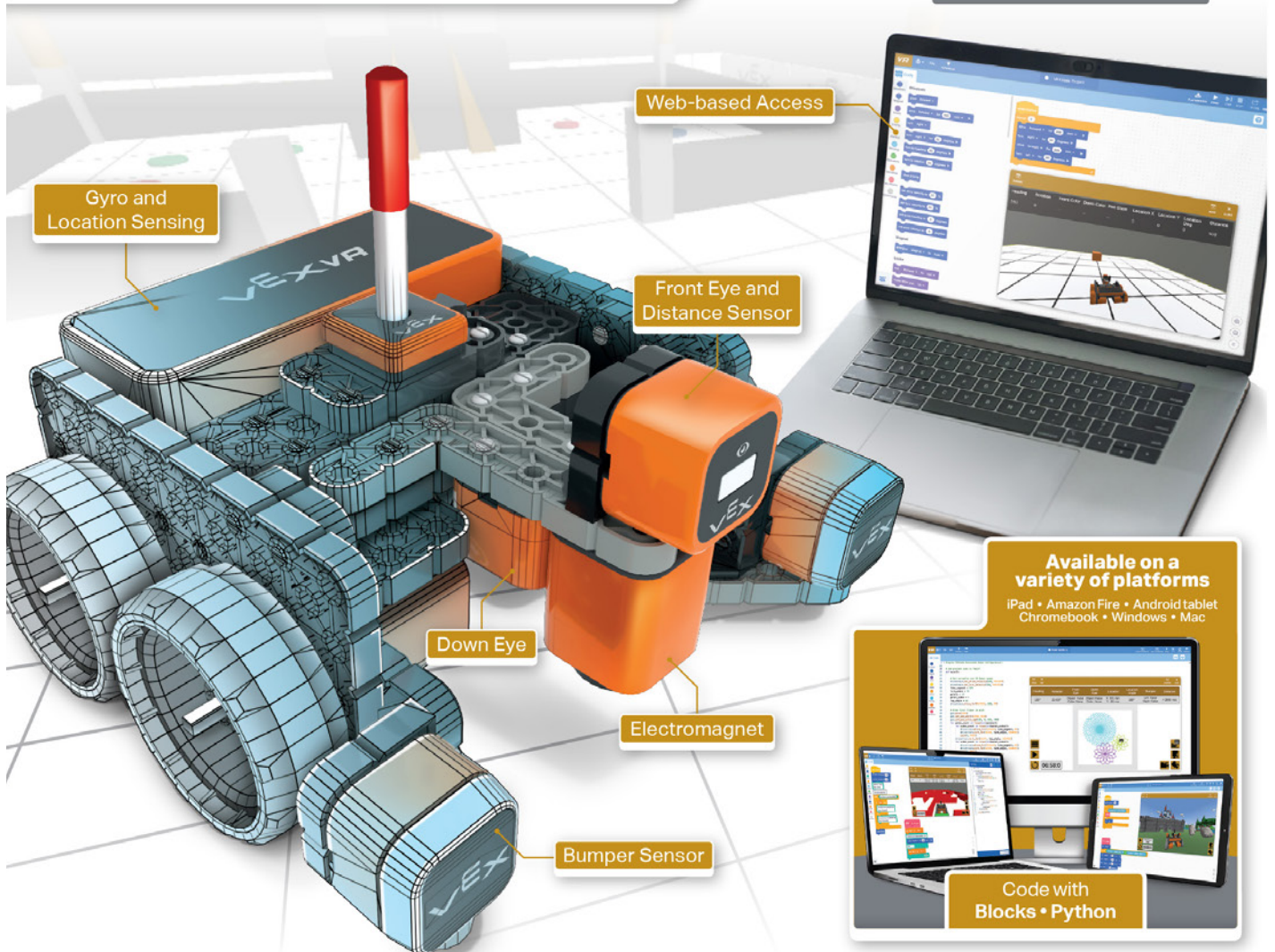Lets the robot see light, colour and gestures, even in darker rooms

Distance Sensor
Uses a safe laser to accurately detect distances without interference

Free Training | Free Lesson Plans | Free Software

Instant answers to almost any question at **help.vex.com**

iq.vex.com

Expanding the **VEXcode VR Universe**

Every license includes access for all the educators' students, both in school and at home.

Teach and learn coding with VR – Virtual Robots! VEXcode VR brings real world STEM concepts to life, making coding immersive, accessible, and fun.

Start with Blocks, then use our patented Switch coding to easily transition to Python coding.

With no student accounts or installation required, student learning submissions make collecting code, progress, and activity easy.

Connect with a VEX sales rep!

eusales@vex.com

📞 01925 251038

	VEXcode VR Free	**VEXcode VR Enhanced**	**VEXcode VR Premium**
Languages	Blocks	Blocks Python (browser)	Blocks, **Switch,** Python (Browser) **Python (VS Code, coming 2023)**
Playgrounds	15 playgrounds with basic graphics	18+ playgrounds with engaging graphics	20+ playgrounds with engaging graphics + AI and Data Science
Competitions	-	-	Playgrounds simulating **VEX Competitions (GO, IQ, V5)**
Professional Development	Educator Certifications	Educator Certifications	Educator Certifications, **VEX PD+, VEX Community**
Curriculum and Activities	Yes	Yes	Yes
Resources	Online	Online and Integrated	Online and Integrated
Learning Submission	-	Yes	Yes
Offline Version	-	Yes	Yes
Support	VEX Forum	VEX Forum, Email	VEX Forum, Email, PD+ Community
	Free	**£170** per educator per year 210-8653	**£430** per educator per year 210-8654
		Free until September 2023	**£260** until September 2023

VEXcode VR **Enhanced**

Castle Crasher +
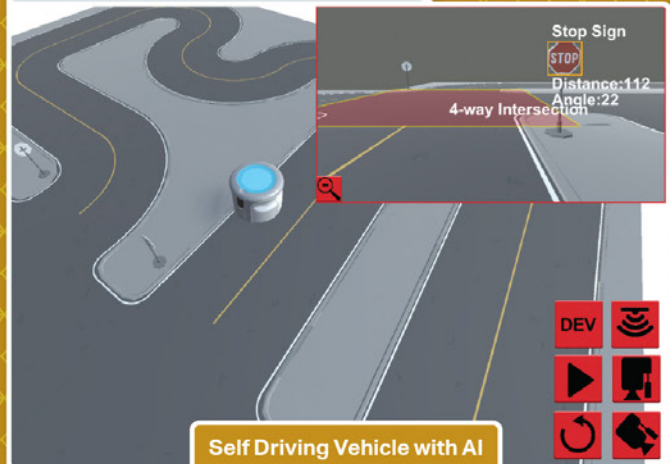
VEXcode VR Enhanced features elevated graphics for increased student engagement! Features Python coding in addition to Block-based coding, making VEXcode VR even more engaging and accessible for students and educators.

VEXcode VR Enhanced includes integrated resource access for teachers and students.

VEXcode VR **Premium**

Self Driving Vehicle with AI

VEXcode VR Premium takes VEXcode VR into the AI world! Includes advanced capabilities like Artificial Intelligence and evolved environments to code in. You can teach Data Science, Artificial Intelligence, and Self Driving Vehicles, bringing competitions to the CS classroom.

Includes playgrounds that simulate VEX Competitions.

Free Teacher Certifications, Lesson Plans, and Software

Instant answers to almost any question at **help.vex.com**

codevr.vex.com

Sphero have recently released their new RVR+ model, to further enhance STEM learning in the classroom. You can find out more about this exciting product below.

While SSERC Digital will support RVR+ in the future, we have other exciting PL offerings coming up with Sphero products in the next academic year:

Sphero indi (Enthuse Funded)

Day 1: Thursday 1st June 2023 – in person at SSERC HQ.
Day 2: Thursday 22nd June 2023 – live remote session via MS Teams.

Day 1: Friday 29th September 2023 – in person at SSERC HQ.
Day 2: Friday 9th December 2023 – live remote session via MS Teams.

Sphero Bolt
Day 1: Friday 23rd February 2024 – in person at SSERC HQ.
Day 2: FRiday 22nd March 2024 – live remote session via MS Teams.

Sphero RVR+

RVR+ is Sphero's revolutionary take on the programmable robot and is optimised for the middle and high school classrooms and makerspaces. It's drivable right out of the box, packed with a diverse suite of sensors, and built for customisation.

RVR+ is expandable and made for novice to advanced programmers. Learners learn coding skills and computer science basics with the free Sphero Edu app or advanced programmers can level up with the Public Sphero SDK to program with Python and connect third-party hardware.

Go-anywhere, do-anything programmable robot
Our most versatile programmable robot yet, packed with a diverse suite of sensors and built for customisation. Drive RVR+ precisely and accurately right out of the box – no assembly or complicated setup required.

Advanced sensors
Packed with on-board sensors including an improved colour sensor allowing for more accuracy in programming RVR+ to see colours in its environment, a light sensor, IR, accelerometer, and gyroscope.

Enhanced gearbox
The gearbox has been redesigned to improve torque, payload capacity, and durability to take inventions even further.

Program it
Use the free Sphero Edu app for an introduction to computer science and programming. Learners can program RVR with draw & drive, blocks, or JavaScript. RVR+ can also be programmed using the Sphero Public SDK and API libraries for more advanced hackers and makers, making it the ultimate programming robot for coders of all levels.

Build on it
Simple enough for a novice to get started, but advanced enough to create anything your imagination can come up with. RVR+s customizable expansion plate lets you connect most third-party hardware including Raspberry Pi, Arduino, micro:bit, and Sphero's own littleBits.

Rechargeable battery
New-and-improved rechargeable and swappable battery to keep programs, inventions, and classroom projects running without any downtime.

You can see Sphero RVR+ in action at https://youtu.be/4XQSmy5OWQ4 «