



MICROBIT



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The BBC micro:bit is a pocket-sized computer that introduces you to how software and hardware work together. It has an LED light display, buttons, sensors and many input/output features that you can program and physically interact with. The latest micro:bit adds sound sensing and playback capabilities.

WHAT YOU'LL LEARN

Students will be able to create projects on their own utilizing all the onboard sensors, also will be familiar with the basics of programming, as well as find information that will enable them to continue to learn independently.

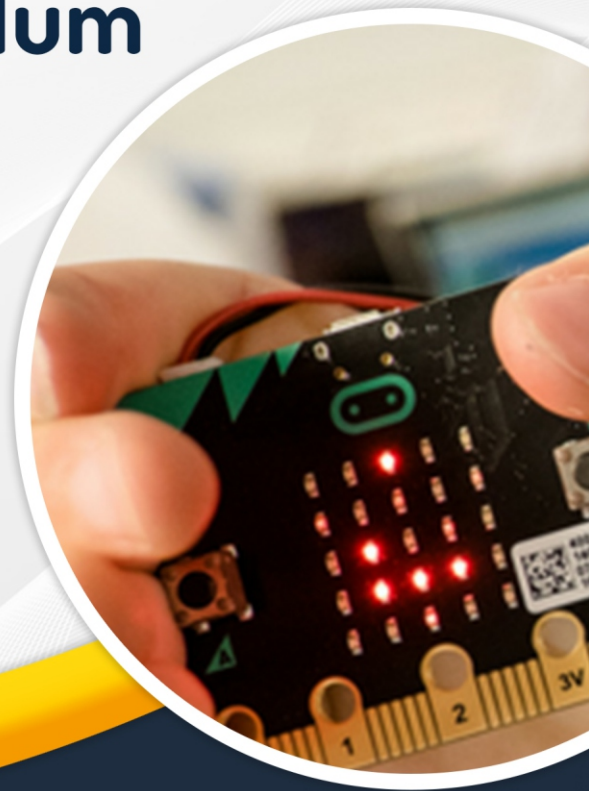
Microbit Course Curriculum

Handling Data

Computational thinking, Programming

Students explore data and the sensors on the micro:bit through a variety of unplugged and programming activities.

- Lesson 1: What is data?
- Lesson 2: Data treasure hunt
- Lesson 3: Sensor gadget design
- Lesson 4: Data conditions & selection
- Lesson 5: Digital assistants



Digital flashcards

Computational thinking, Languages, Programming

Students design and program digital flashcards to help them learn a foreign language using the micro:bit.

- Lesson 1: Flashcard algorithms
- Lesson 2: Abstraction & programming
- Lesson 3: Patterns & delays
- Lesson 4: Predicting & experimenting
- Lesson 5: Debugging & evaluating



Electrical conductors

Computational thinking, Computer systems, Programming, Sciences

Students develop their understanding of flowchart algorithms, selection, inputs and outputs by programming the micro:bit to make a tester for electrical conductivity.

- Lesson 1: Selection & conductivity investigation
- Lesson 2: Decision boxes
- Lesson 3: Inputs
- Lesson 4: Making a conductivity tester
- Lesson 5: Review & reflection

Getting Active

Computational thinking, Programming, Sciences

Students are introduced to variables and develop different programs using the micro:bit to help families get active.

- Lesson 1: Describing with variables
- Lesson 2: Using variables in programs
- Lesson 3: Programming step-counters
- Lesson 4: Random activities
- Lesson 5: Programming an activity picker



Musical micro:bit

Computational thinking, Computer systems, Music, Programming

Students compose musical phrases and algorithms before exploring how the micro:bit can be programmed to play music.

- Lesson 1: Musical algorithms
- Lesson 2: Programming & debugging music
- Lesson 3: Musical gestures
- Lesson 4: Controlling music with inputs
- Lesson 5: Evaluating micro:bit music

Nature art

Computational thinking, Digital arts, Programming

Students learn how to create natural abstractions using the LEDs.

- Lesson 1: Representing nature
- Lesson 2: Art algorithms
- Lesson 3: Digital nature representations
- Lesson 4: Programming & evaluating representations

Design Challenge:

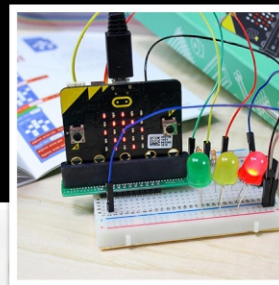
Computational thinking, Global Goals, Networks, Programming



Two simple activities exploring how technology can be used to protect biodiversity in your neighbourhood and the wider world using the micro:bit. Design challenges for finding solutions to the Global Goals for sustainable development (SDGs).

Activity 1: Spot the species

Activity 2: Anti-poaching collar



Requirement :

1. Components : micro:bits, micro:bit battery packs, micro:bit USB cable
2. Software or App : MakeCode editor
3. Required Laptop/Phone with internet connection
4. No prior knowledge in programming or electronics

Course Outcome :

Boost engagement

With endless possibilities when it comes to what it can be used for, the whole purpose of the micro:bit is to inspire higher levels of engagement and creativity in a new generation of young people.

Prepare Students for employment

Making learning with technology fun, the easy to use micro:bit encourages students to engage with STEM subjects, boosting their future employability.

Applicable across education levels

The simplicity and versatility of the micro:bit makes it an easy, fun starting point for early years digital engagement. But the more you hack, the more you can do. So it's also a powerful tool for more advanced coders, designers, artists, scientists, and engineers.

Boost computational thinking across the curriculum

When it comes to the educational benefits of the micro:bit, it's not always about programming. The device can also be used to instil computational thinking, enhanced learning, and problem-solving across disciplines. These skills are vital when it comes to giving students the tools they need to thrive in our emerging and complex economy.

Boost learning and retention

Students learn best when they are immersed in learning, and this is achieved through interaction and application. With the micro:bit, Students can get hands on and switch from being consumers of digital information to designers and creators. Such active learning also ensures that they retain information with greater ease.

Encourage collaborative learning

A hands-on tool, the micro:bit is a fantastic way to use technology to create more multi-sensory classrooms based on communication, innovation, and collaboration skills.

Learning outcome (4 Lines):

Students will be able to create projects on their own utilizing all the onboard sensors, also will be familiar with the basics of programming, as well as find information that will enable them to continue to learn independently.

