



GEO-ACADEMY

GEO-Hub for teachers in Europe

**Innovative digital GEO-Tools for
enhancing teachers' digital, green and
spatial skills towards an effective STEAM
Education for Sustainability Development**

Geo-Academy Summer School 2025

Introduction to microbit

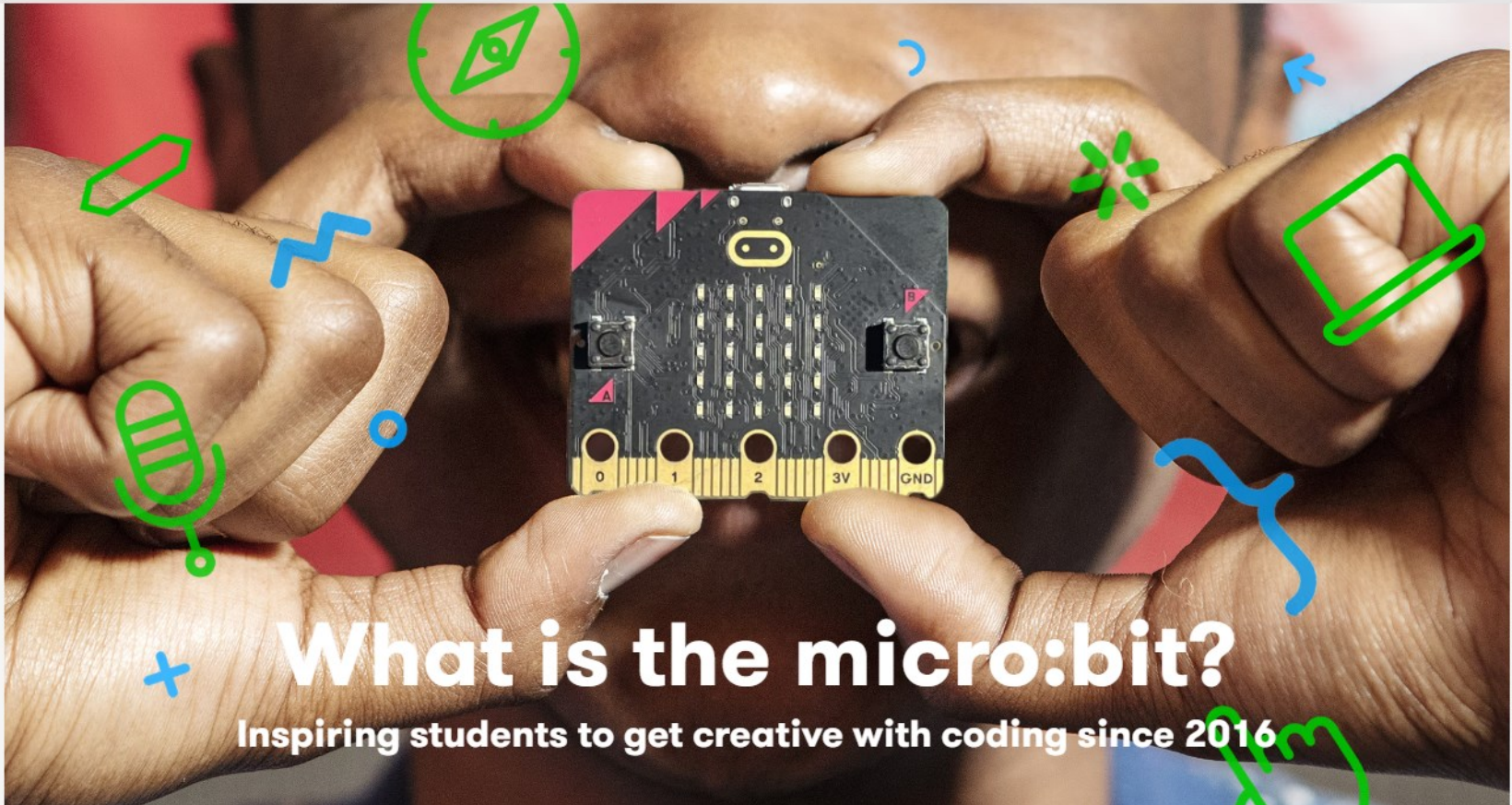
Rolf Niemann
Lund University



GEO-Academy is a Teachers' Academy project funded by the Erasmus+ Programme of the European Union. REF: ERASMUS-EDU-2022-PEX-TEACH-ACA under GA No. 101104693. The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein

Co-funded by the
Erasmus+ Programme
of the European Union





what-is-the-microbit

Getting started | micro:bit

Getting started | micro:bit x +

← ↻ 🔒 https://microbit.org/get-started/getting-started/introduction/ 🔍 ☆ ⚙️ 🌐 ⋮

Language ▾ Help & support Safety

micro:bit Get started Projects Teach Let's code Impact Buy News

What is the micro:bit? Getting started Features User guide

Getting started

Share

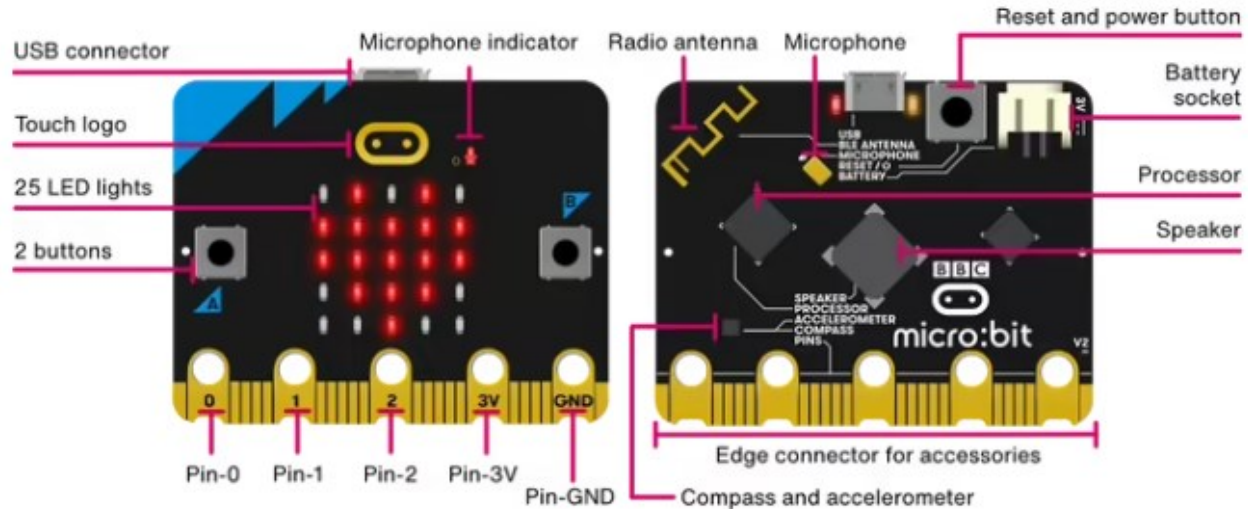
- 1 Introduction**
- 2 Power up and play
- 3 Get coding
- 4 Start teaching

The BBC micro:bit is an award-winning programmable device that allows students to get hands-on with coding and digital making. Use it to inspire your students to recognise the power of technology in the real world.

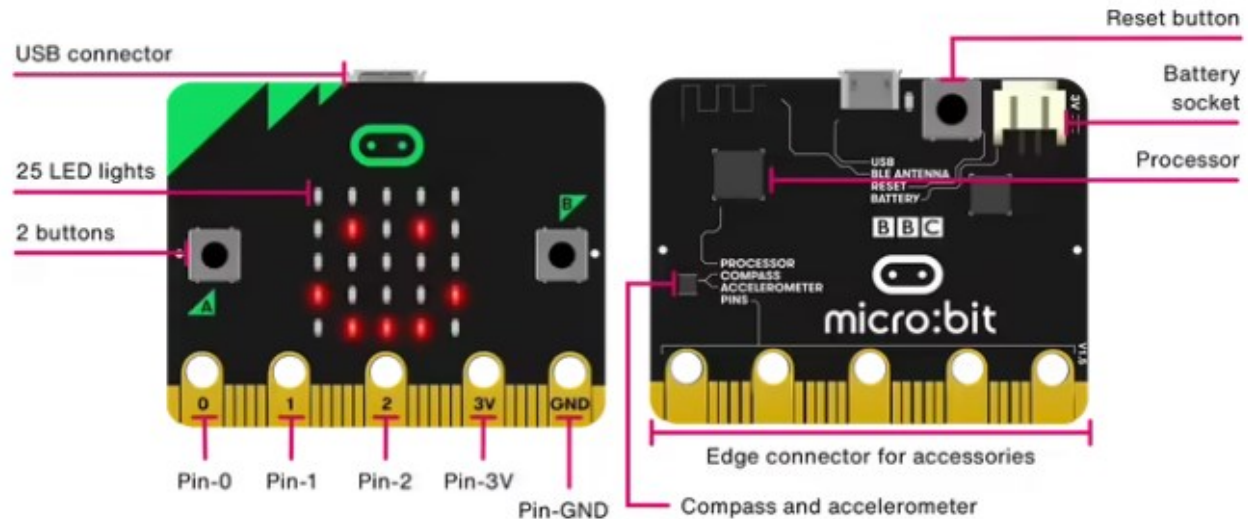
These first steps will help you get started and ready to teach with the micro:bit.

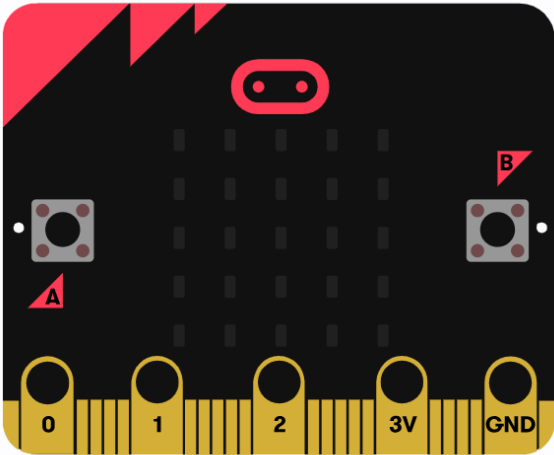
Don't have a micro:bit yet? [Visit our product pages.](#)

New micro:bit with sound



Original micro:bit

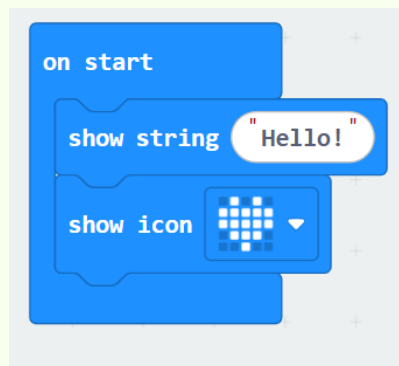
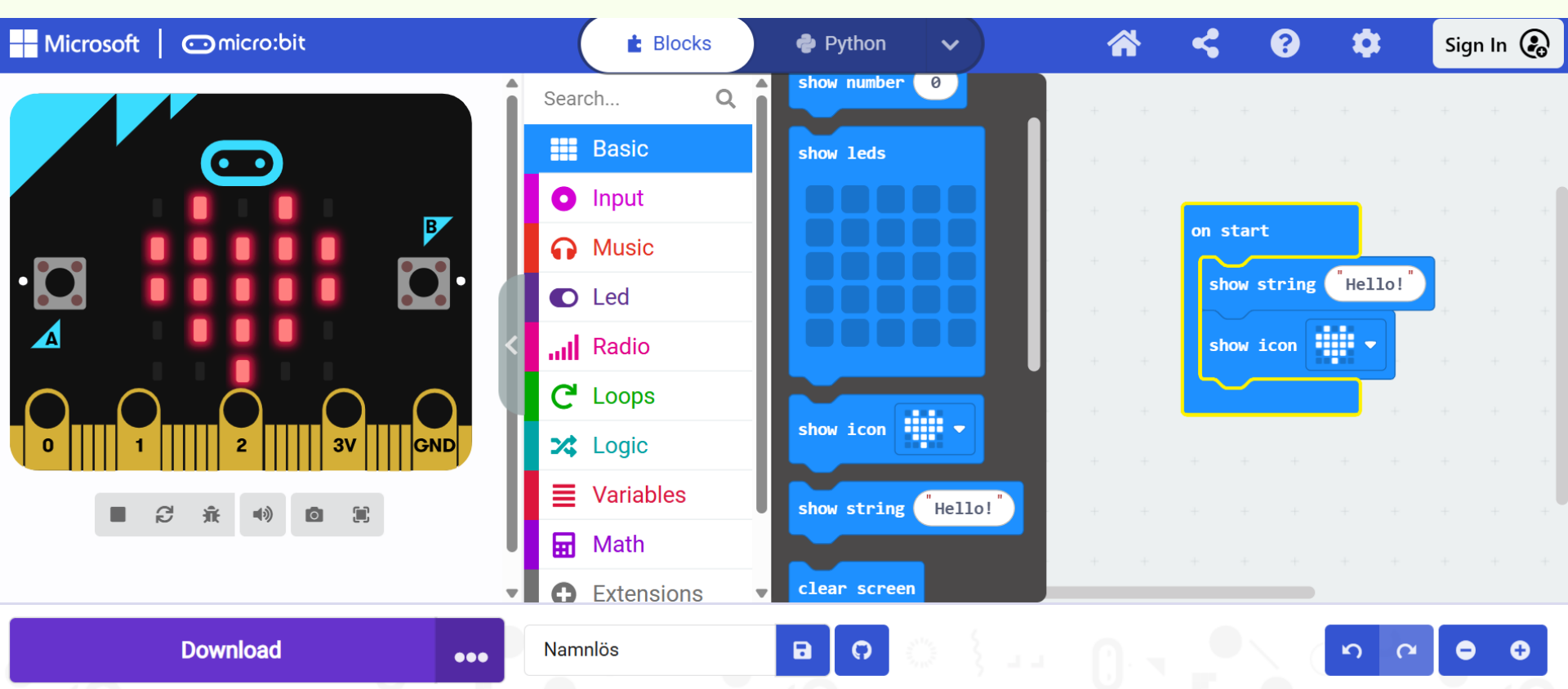




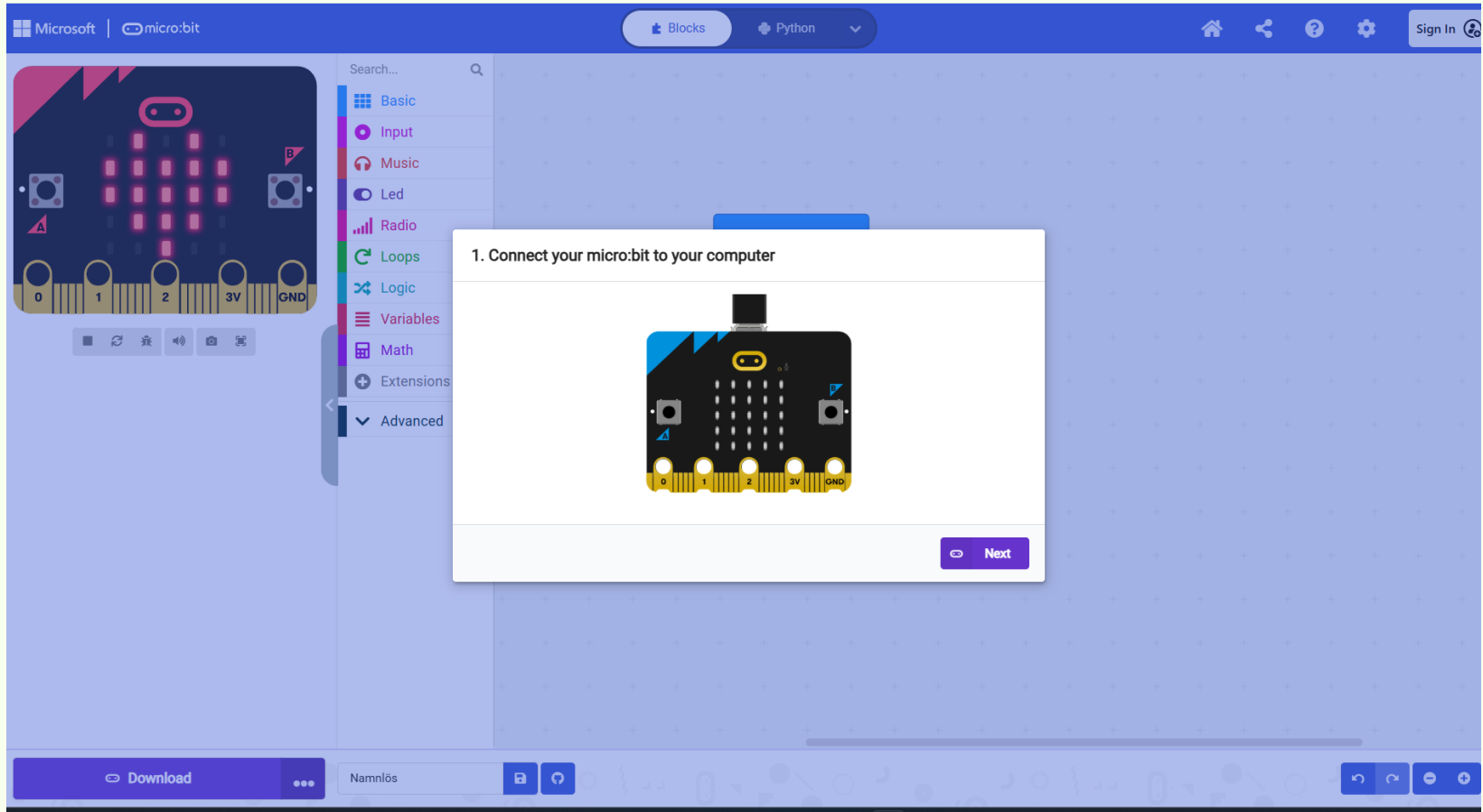
- Search...
- Basic
 - Input
 - Music
 - Led
 - Radio
 - Loops
 - Logic
 - Variables
 - Math
 - Extensions

on start

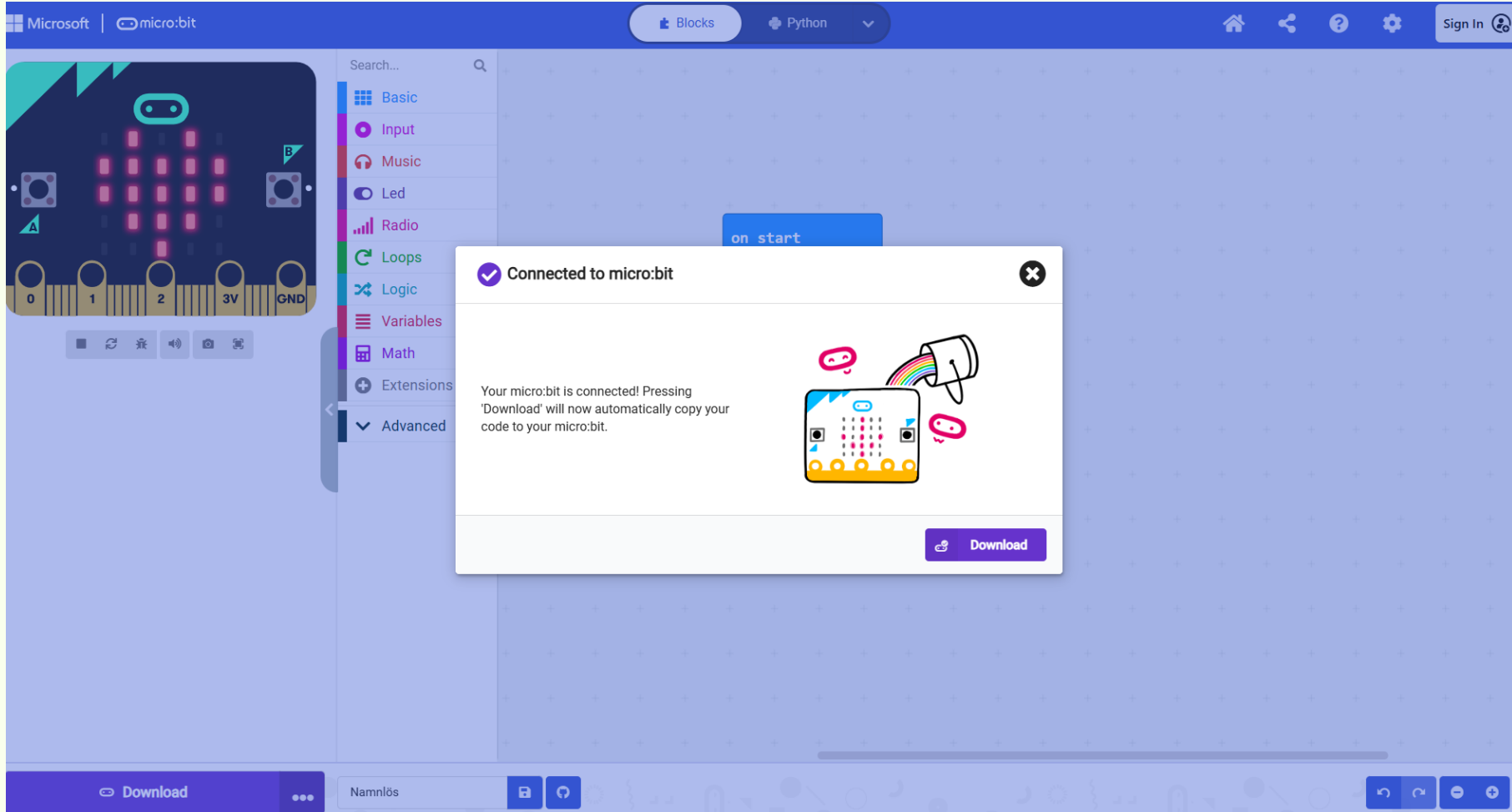
forever



Connect your micro:bit: step 1



Connect your micro:bit: follow the instructions!



Blocks

Python



Sign In

Search...



Basic

Input

more

Music

Led

Radio

Loops

Logic

Variables

Math

Input

on button A pressed

on shake

on pin P0 pressed

button A is pressed

acceleration (mg) x

pin P0 is pressed

light level

compass heading (°)

on button A pressed

Namnlös



Microsoft | micro:bit

Blocks Python

Search...

- Basic
- Input
- Music
- Led
- Radio
- Loops
- Logic
- Variables
- Math
- Extensions
- Advanced

Loops

- repeat 4 times
- do
- while false
- do
- for index from 0 to 4
- do
- for element value of list
- do
- every 500 ms
- break
- continue

on button A pressed

- repeat 4 times
- do
- show icon
- pause (ms) 100
- show icon
- pause (ms) 100

Download

Namnlös

Try out the code above and make some changes. Send a heart to you colleague!

Microsoft | micro:bit

Blocks Python

Search...

- Basic
- Input
- more
- Music
- Led
- Radio
- Loops
- Logic
- Variables
- Math
- Extensions
- Advanced

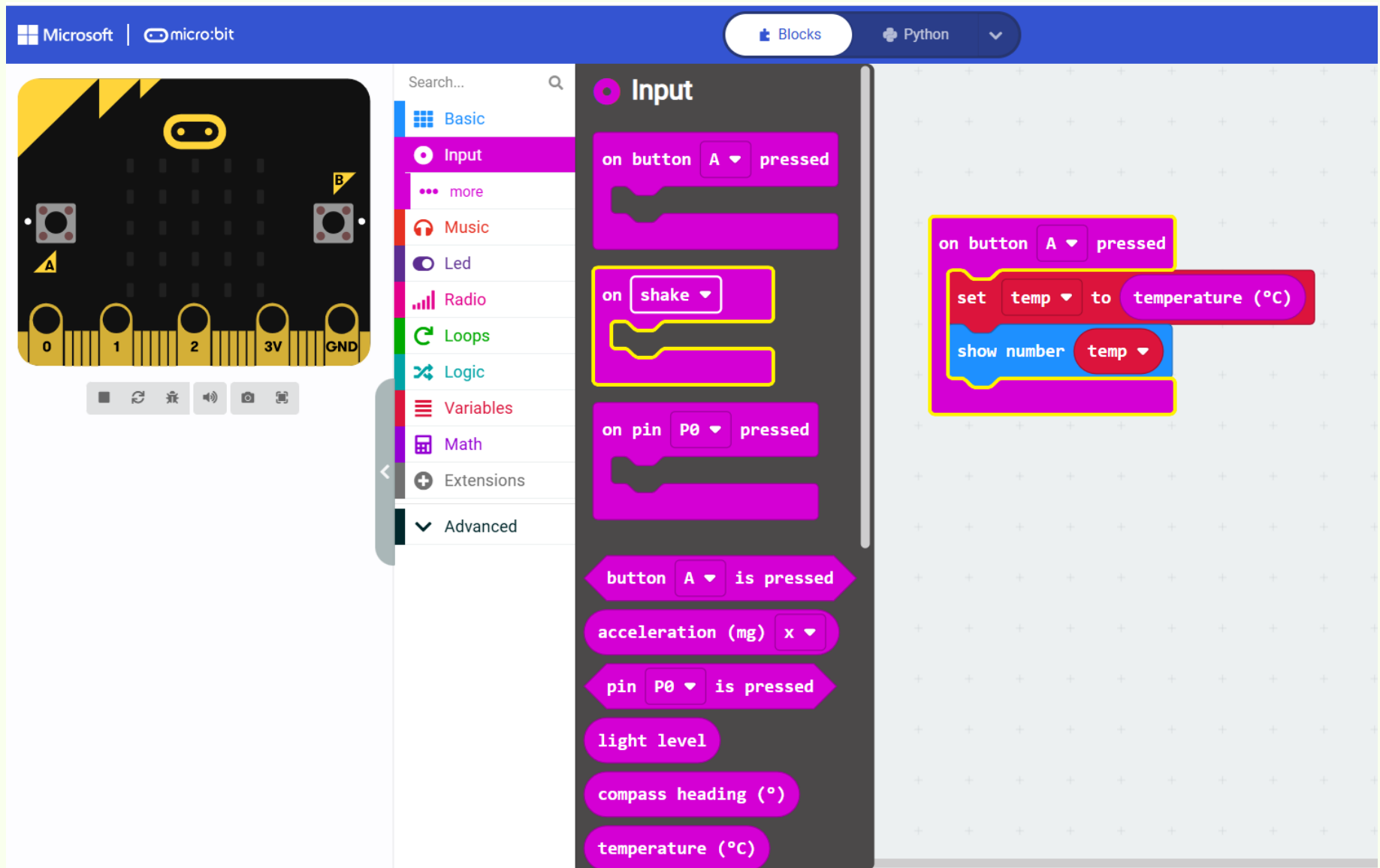
Input

- on button A pressed
- on shake
- on pin P0 pressed
- button A is pressed
- acceleration (mg) x
- pin P0 is pressed
- light level
- compass heading (°)
- temperature (°C)

on button A pressed

set temp to temperature (°C)

show number temp



Try out the code above. Check out the temperature in the room!

Let's measure the light level!

The screenshot displays the Microsoft MakeCode micro:bit editor interface. On the left, a virtual micro:bit board is shown with its pins labeled 0, 1, 2, 3V, and GND. Below the board are icons for running, saving, erasing, and viewing the code. The central pane features a search bar and a category list including Basic, Input, Music, Led, Radio, Loops, Logic, Variables, Math, Extensions, and Advanced. The 'Variables' category is selected, revealing a 'Make a Variable...' button and a list of existing variables: 'index', 'light', and 'temp'. The right pane shows a block-based script: an 'on button A pressed' event triggers a 'set light to light level' block, followed by a 'show number light' block. The 'light' variable is highlighted in the variable list on the left.

Microsoft | micro:bit

Blocks Python

Search...

Basic
Input
Music
Led
Radio
Loops
Logic
Variables
Math
Extensions
Advanced

Variables

Make a Variable...

set light to 0

change light by 1

Your Variables

index
light
temp

on button A pressed

set light to light level

show number light

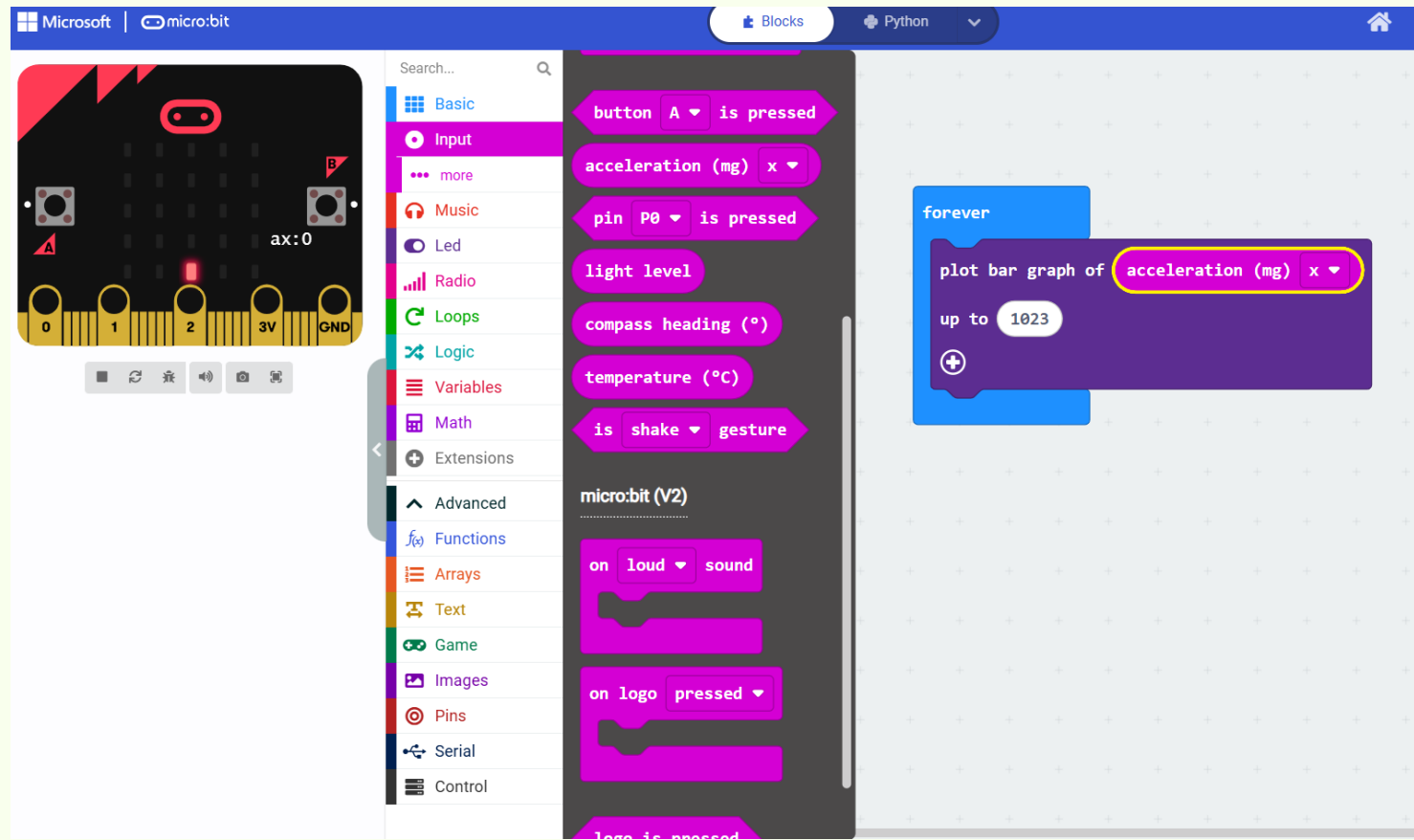
Let's plot the light level!

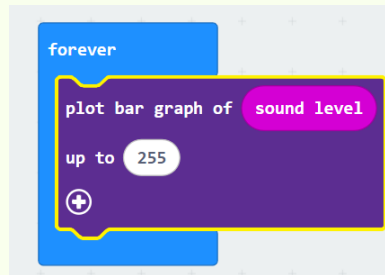
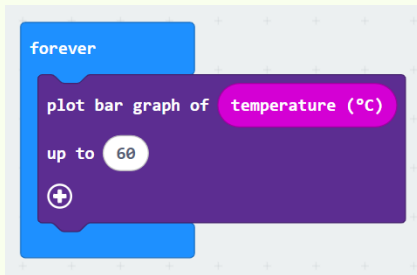
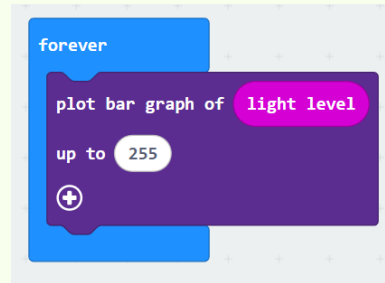
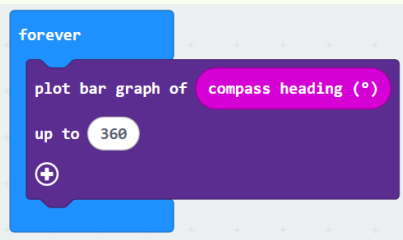
The screenshot shows the Microsoft MakeCode editor for the micro:bit. The interface is divided into several sections:

- Top Bar:** Microsoft | micro:bit logo on the left. On the right, there are tabs for 'Blocks' (selected) and 'Python'.
- Left Panel:** A visual representation of the micro:bit board. It shows a grid of LEDs, some of which are lit red. A light sensor icon is visible in the top left corner, with the number '128' next to it. Below the board are icons for various functions like 'Run', 'Save', 'Download', 'Audio', 'Camera', and 'Serial'.
- Center Panel:** A search bar at the top. Below it is a list of categories: Basic, Input, Music, Led (selected), more, Radio, Loops, Logic, Variables, Math, Extensions, Advanced, Functions, Arrays, Text, Game, Images, Pins, Serial, and Control.
- Right Panel:** The workspace where the code is written. It contains a 'forever' loop block. Inside the loop is a 'plot bar graph of light level up to 255' block. The 'light level' text is highlighted in pink. Below the loop is a '+' icon to add more blocks.

Let's check out :

Temperature
Light level
Acceleration
compass
Noise (V:2)





Blocks

Py

Input

Music

Led

Radio

Loops

Logic

Variables

Math

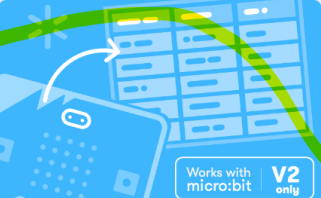
Extensions

Advanced

Go Back


Extensions

Recommended




datalogger
Data logging to flash memory.
micro:bit (V2) only.

Learn More



radio-broadcast
Adds new blocks for message
communication in the radio
category


Learn More



servo
A micro-servo library

Learn More

Go to the micro:bit project side and follow the instructions!




micro:bit

Get started **Projects** Teach Let's code Impact Buy News

Make it: code it / Environment data logger



Activity

Environment data logger

Share   

Intermediate | MakeCode | Buttons, Data logging, LED display, Light sensor, Microphone, Temperature sensor | Boolean logic, Data collection, Data handling, Information handling, Sensors, Statistics & graphs, Working scientifically

- Step 1: Make it
 - What is it?
 - What you need
 - Gather data
 - Analyse your data
- Step 2: Code it
- Step 3: Improve it

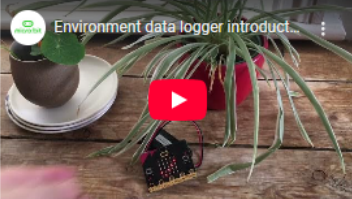


micro:bit and AI

Step 1: Make it


What is it?

Discover the best places to grow plants by using your BBC micro:bit to study light levels and temperatures over several hours or days.

Introduction



Coding guide



What you need

- a micro:bit V2
- a computer and micro USB cable for coding the micro:bit and viewing your data
- micro:bit battery pack (optional but recommended)
- our [data logging guide](#) may be useful

Gather data

- Flash the program below onto your micro:bit.
- Disconnect it from your computer, attach a battery pack and put the micro:bit where you'd like to study temperature and light levels.
- Transferring a new program to your micro:bit will erase any previous data logs, but you can also delete old data by pressing buttons A and B together. Having one set of data with continuous timestamps makes it easier to view later.
- Press button A to start logging. A tick (or check mark) will appear on the LED display. It will now record data every 1 minute (60,000 milliseconds). You can change this interval by modifying the 'every' block in the code. A heart flashes on the LED display to show when data is being recorded.
- In the unlikely event the log becomes full, the code lets you know by lighting all the LEDs on the display.
- Press button B to stop logging. You'll see an 'X' appear to show it has stopped.