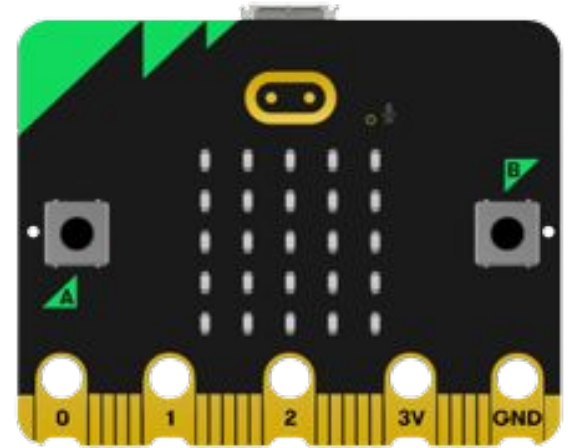


Micro:bit - what is it?

- A small pocket-sized computer
- Microcontroller
- Can hold one program at a time (meaning that each time you flash a new program onto the micro:bit, it overwrites the current one)
- Program on the computer then flash (download) this to the micro:bit



Why physical computing?

From technology **user** to **creator**

National Curriculum, Key Stage 2

design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems

Input – process - output

- Input device = any type of hardware that allows us to send data to a computer (buttons, sensors, microphones)
- Processor = hardware that receives inputs, runs the program that tells it what to do with the input and produces outputs
- Output device = any type of hardware that allows information to be communicated to us (LED grid, speaker)

Micro:bit Input/Output

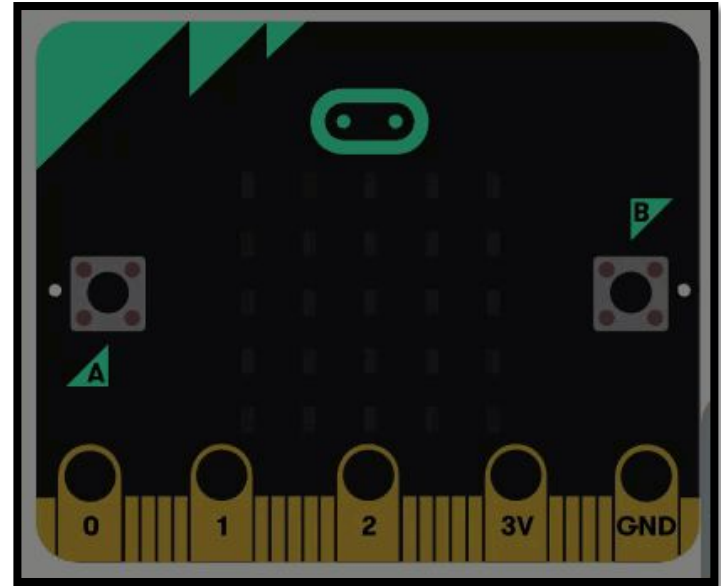
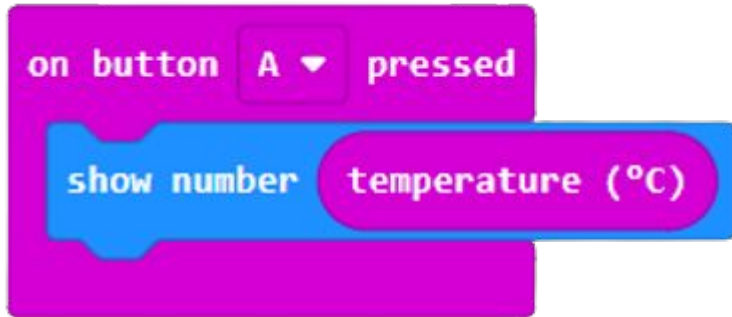
- Buttons
- Light sensor
- Touch sensor
- Temperature sensor
- Microphone
- Compass
- Accelerometer
- Speaker
- An LED light display (show pictures and words)

Input

output

Input - output

When I press button A, check the temperature, display the temperature on the LED grid.

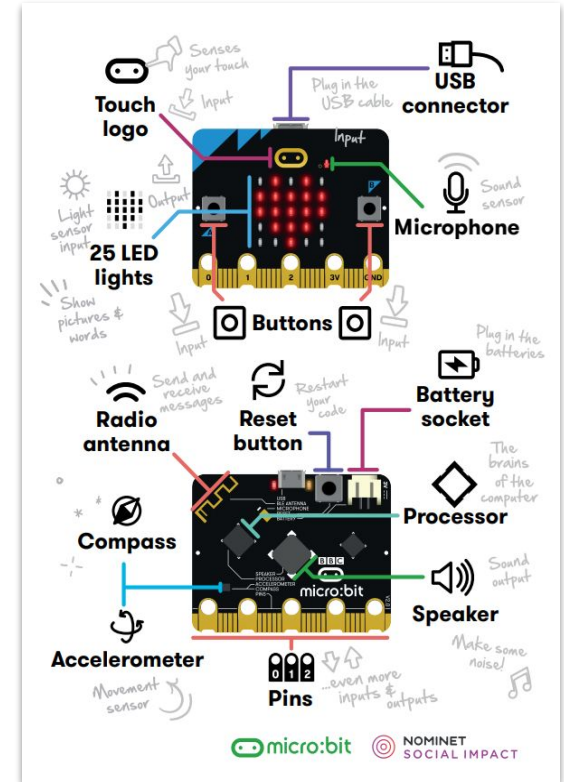


micro:bit resources

printed poster and reward stickers

Could print off for each pupil

Could get printed as a large poster for the classroom

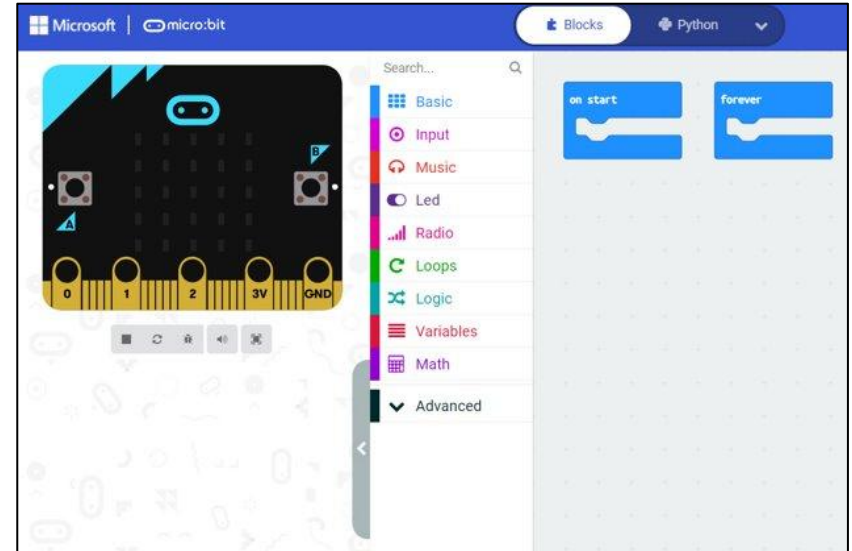
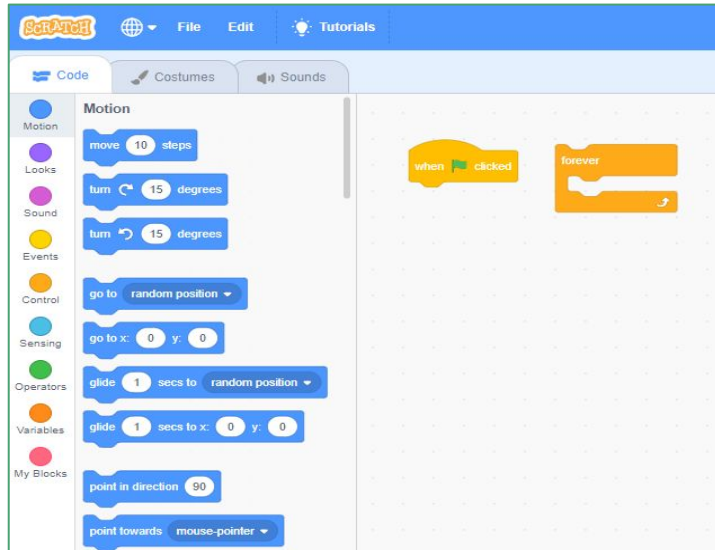


The MakeCode environment

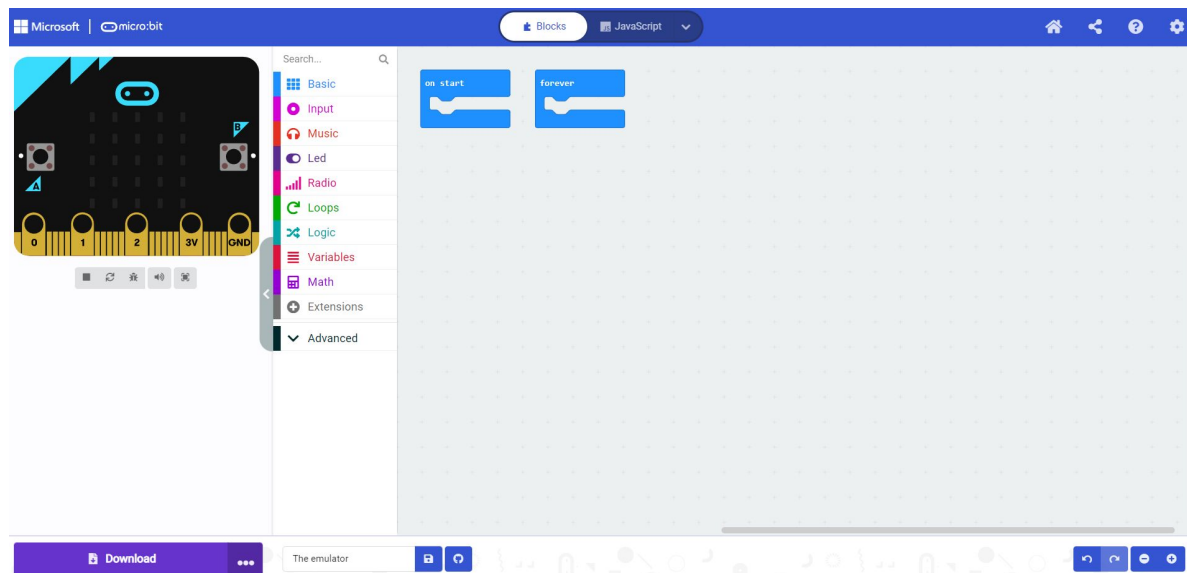
Great transition from Scratch

Block based

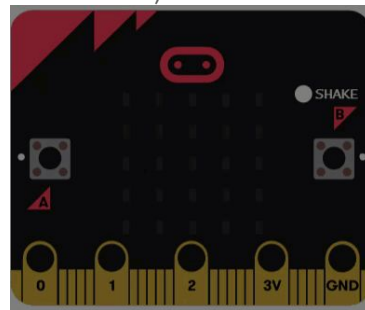
Colour coded 'folders' of blocks



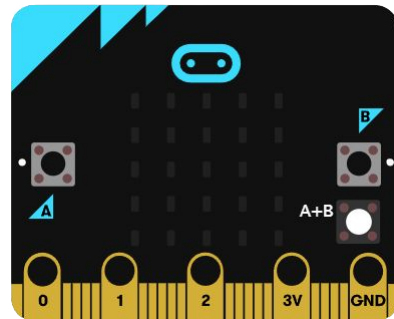
The simulator - test and debug



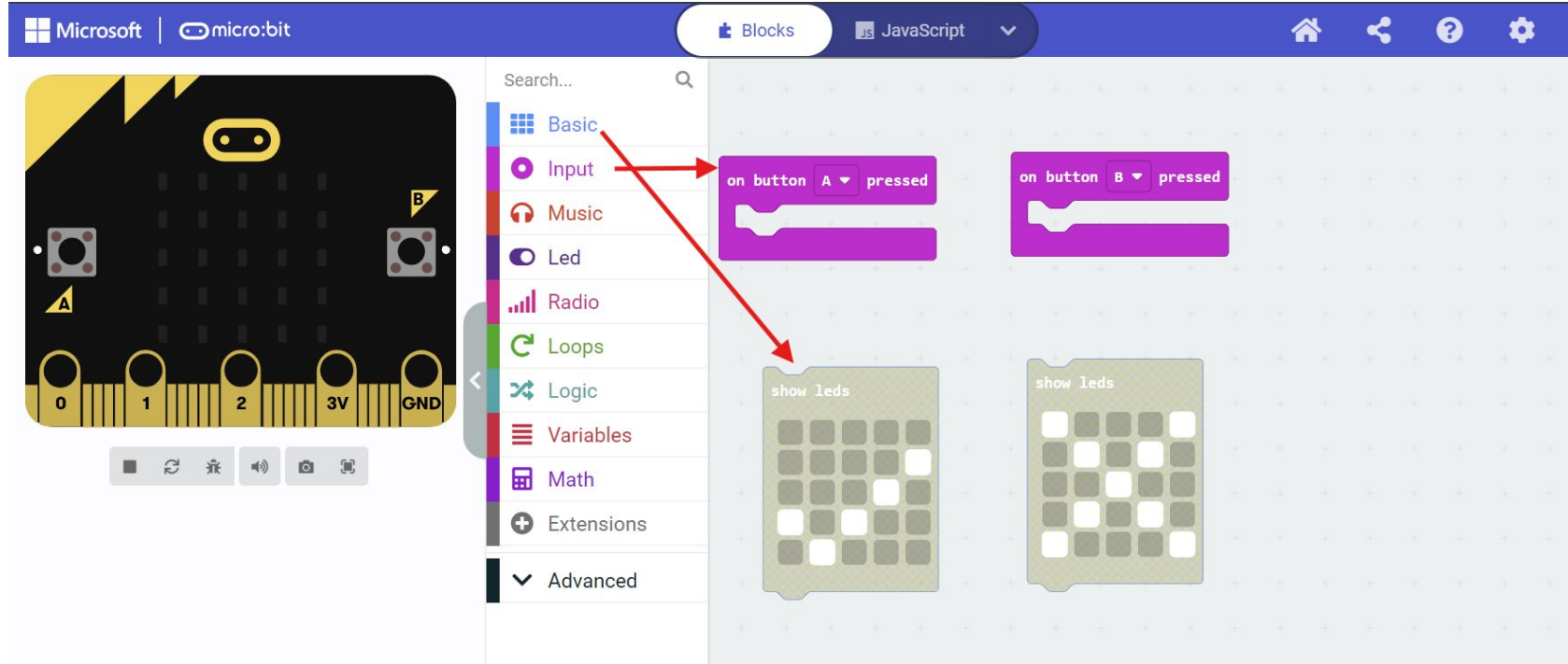
Can simulate shake (see additional shake button above the B button)



Can simulate A + B button being pressed (see A+B button below B button)

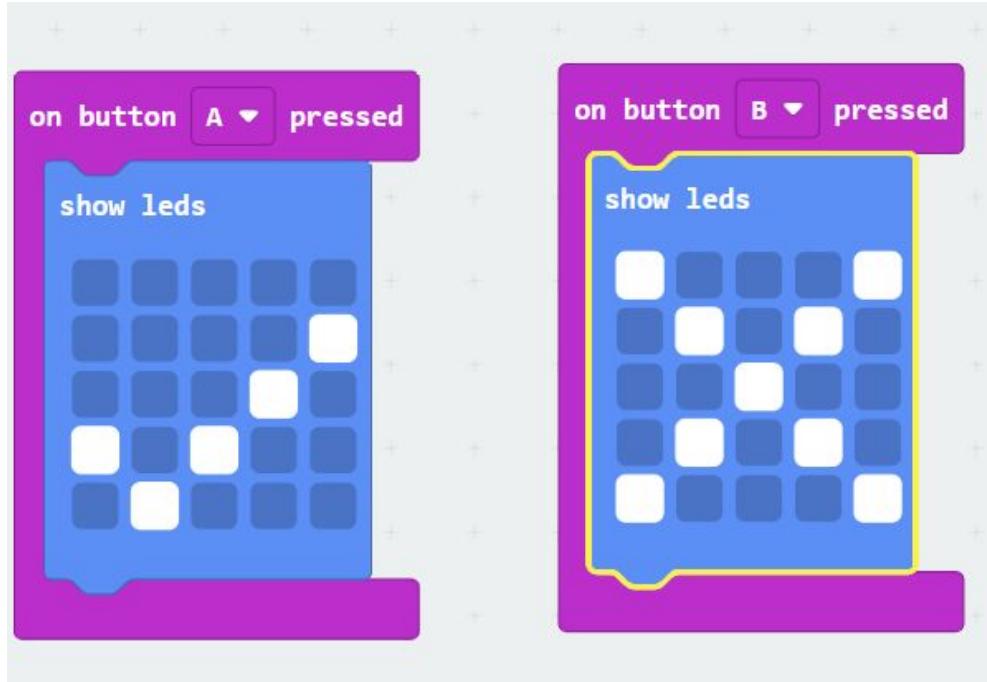


Making a student response system



Very straight forward starter project - and could be used practically in the classroom

Making a student response system



micro:bit devices

Moving from the simulation to the physical device

Code created in the micro:bit classroom can be flashed (downloaded) onto a micro:bit (look for the flashing light on the microbit to show this is happening)

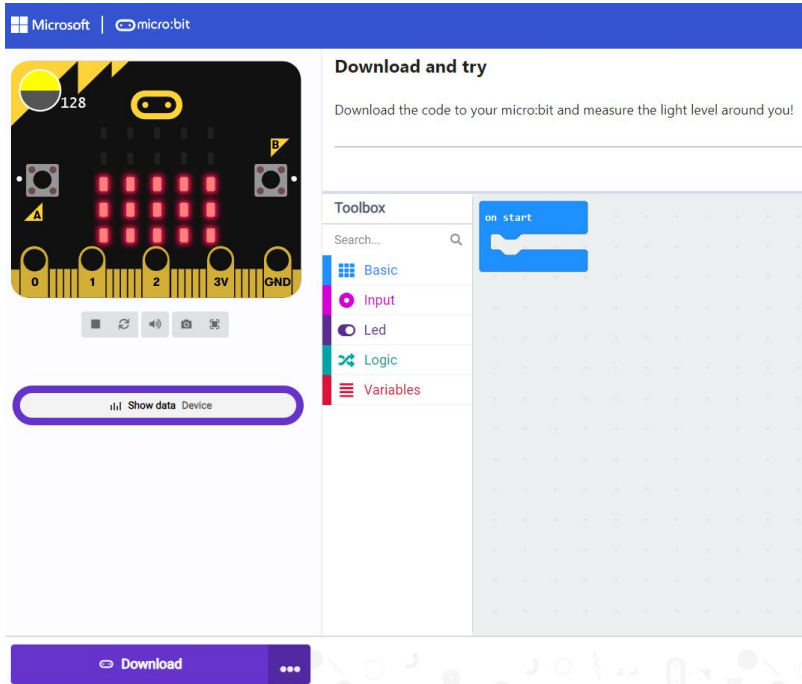
The micro:bits can be detached from the computer and powered by a battery pack - this means that portable data-logging can take place

See this link for instructions for transferring your micro:bit file to your micro:bit

[Flashing your program to the micro:bit](#)

*there are two methods for doing this - connecting your micro:bit to automatically download each time you click on the button - faster and easier but doesn't always work and you will lose the program each time you download a new one
The second method involves downloading the file manually - this is recommended - see the link to the instructions above

Flashing micro:bit programs to your devices



Method 1:

Click on the three dots, select 'connect' and then follow the on screen instructions. After this each time you want to flash a new program to your microbit all you will need to do is click on the download button.

* Method 2:

Click on the three dots, select 'download as file'. Choose where to save your hex file (so that you can find it again and re-use it). To flash your program to the micro:bit, simply drag the file onto your micro:bit which will appear as an external drive (much like dragging a file onto a flash drive).

Flash your student response system to your microbit

Connect your microbit

Flash your student response system to your microbit

Remove from the computer and attach a battery pack to make it portable

Test it using your A and B buttons

Develop your confidence

Tutorials in the makecode environment are a really nice way to develop confidence. They provide step by step instructions to support the learner to create variety of programs for different purposes.

Tutorials



Flashing Heart



Name Tag



Smiley Buttons



Dice



Love Meter



Micro Chat



Classroom management

Micro:bit classroom is a classroom management environment where you can:

- Set up programs and share them with your pupils
- View pupils' code, as they create it, from your device
- Share one pupil's code with the class on your whiteboard
- Lock pupil screens
- Save work to continue it on another day
- Save a screenshot of pupil work – useful for assessment and evidence

<https://classroom.microbit.org/>

Opening micro:bit classroom

 micro:bit | classroom 


Welcome to micro:bit classroom

Run whole class sessions, easily share code with students and save progress [↗](#)

Pick up where you left off


Open last session

Name: Parson's Problems
Date: 21 Nov 2023



Continue a saved session


Use the file you saved to your computer to continue a session



Start something new

New blank session

Start your students with a blank code editor or set up starting code yourself



Choose a project or lesson

Find a project or lesson from our teacher resources and open it in micro:bit classroom

[Browse projects](#)

[Browse lessons](#)

Easy to invite pupils to your classroom

The screenshot displays the micro:bit classroom web interface. At the top, a black navigation bar contains the 'micro:bit | classroom' logo on the left and four buttons on the right: 'Setup', 'Invite', 'Save', and 'End session'. A red arrow points directly to the 'Invite' button. On the left side, a 'Class' sidebar lists participants. The first entry is 'You' with the instruction 'View and edit your own code'. The second entry is 'Sarah', highlighted with a purple background and a red arrow pointing to it. At the bottom of the sidebar, a status bar shows a person icon and the text 'Joined: 1', with a red arrow pointing to it. The main workspace on the right shows a code editor with a 'forever' loop containing three blocks: a 'show icon' block, a 'pause (ms) 500' block, and another 'show icon' block.

Parson's Problems

A strategy for:

- Reducing cognitive load
- Focusing the learner on the structure
- Encouraging logical thinking as it allows learners to practise sequencing and problem solving

Can support formative assessment

Parson's problems can easily be created in microbit classroom

Great micro:bit resources

Go to: <https://microbit.org/teach/classroom-resources/>

To find a range of lovely resources including:

- Planning sheets
- Annotated micro:bit posters (these could be printed off on A3 or printed off and given to pupils)
- Vocabulary posters
- Certificates
- Glossary