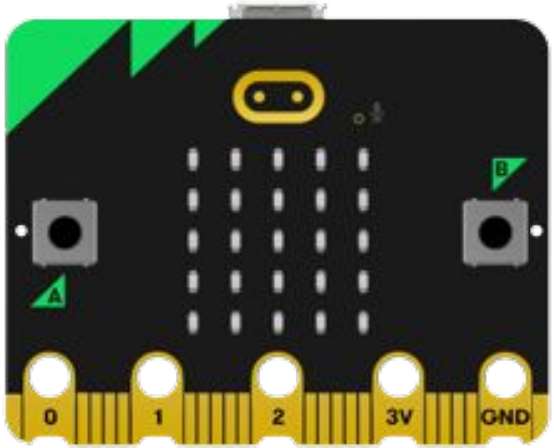
Micro:bit - what is it?

- 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

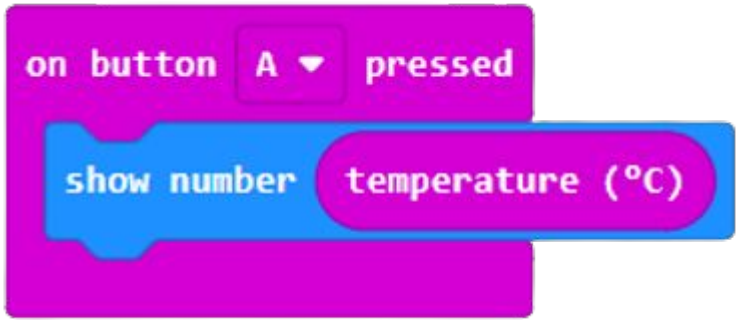
- Buttons
- Light sensor
- Touch sensor
- Temperature sensor
- Microphone
- Compass
- Accelerometer
- Speaker
- An LED light display (show pictures and words)

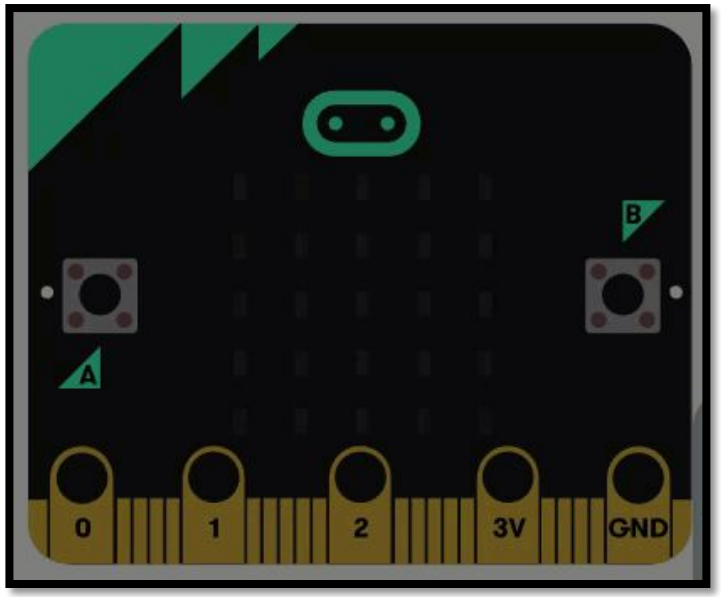
Input

output

Input - output

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



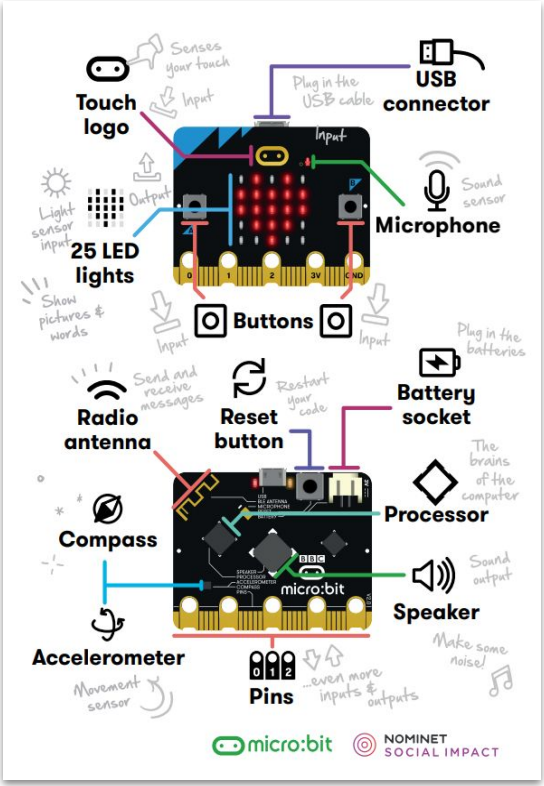


micro:bit resources

printed poster and reward stickers

Could print off for each pupil

Could get printed as a large poster for the classroom

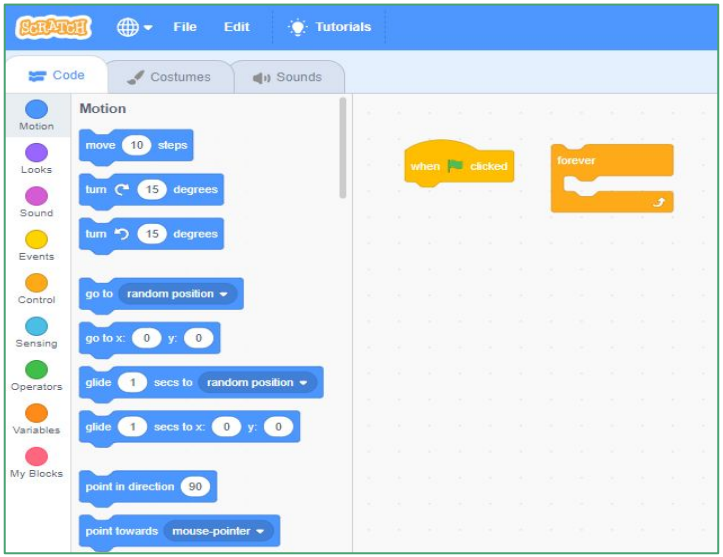


The MakeCode environment

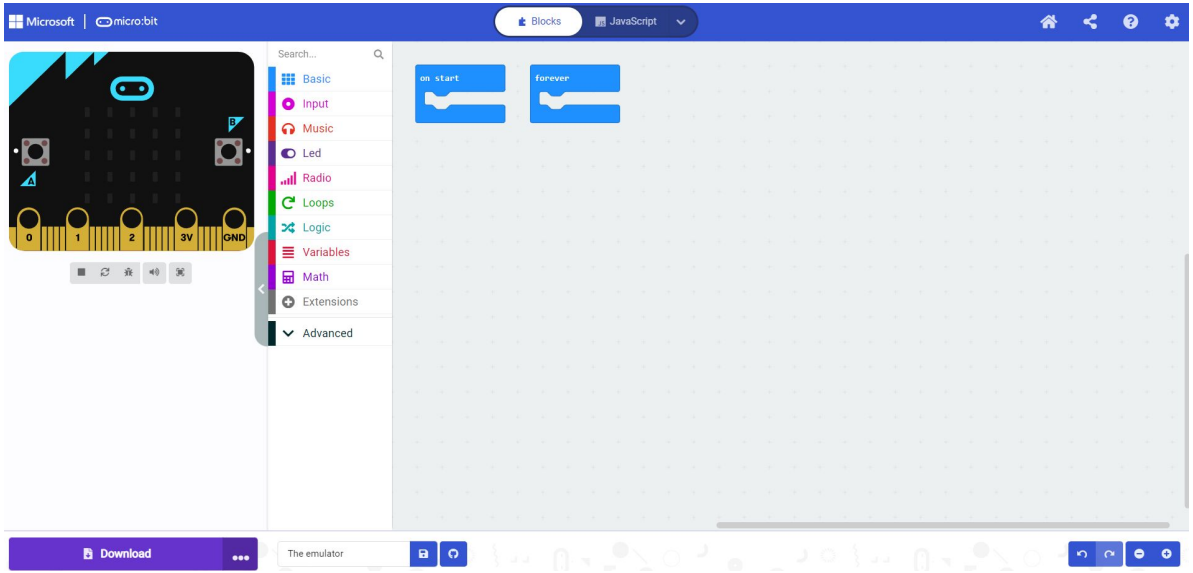
Great transition from Scratch

Block based

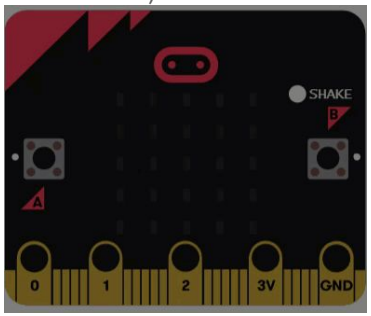
Colour coded ‘folders’ of blocks



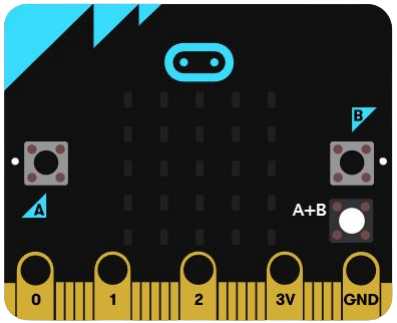
The simulator - test and debug



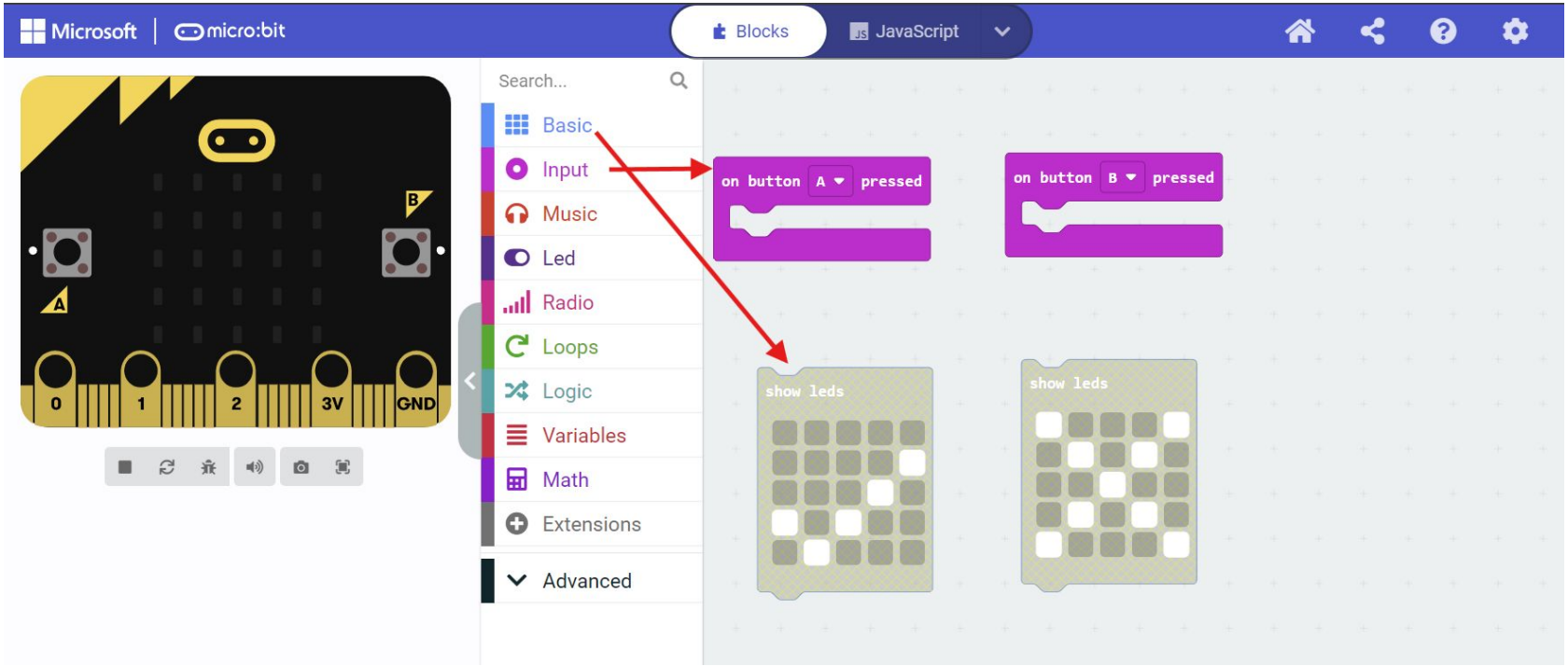
Can simulate shake (see additional shake button above the B button)



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

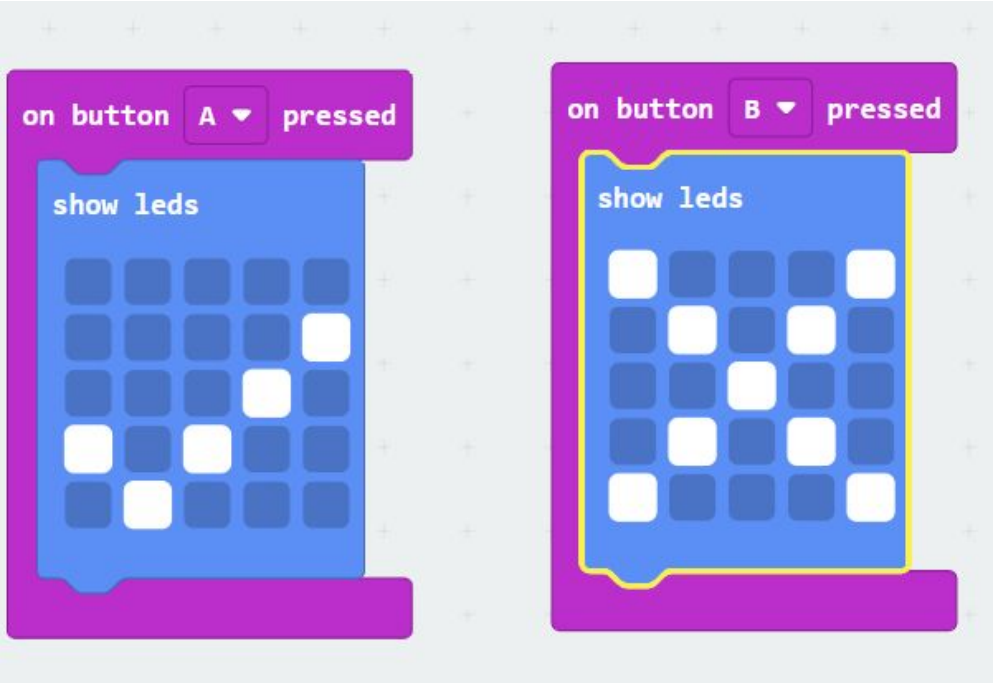


Making a student response system



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

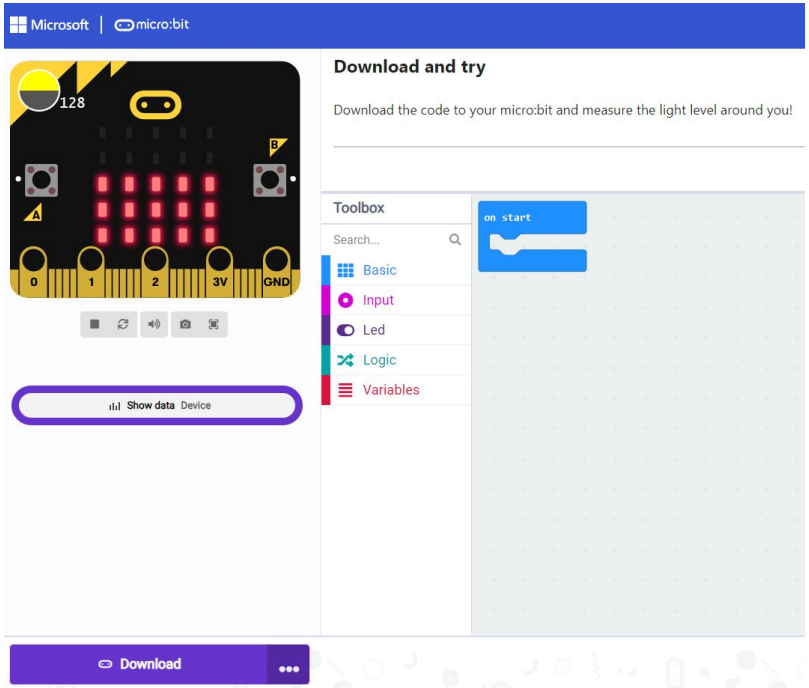
Code created in the micro:bit classroom can be flashed (downloaded) onto a micro:bit (look for the flashing light on the microbit to show this is happening)

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

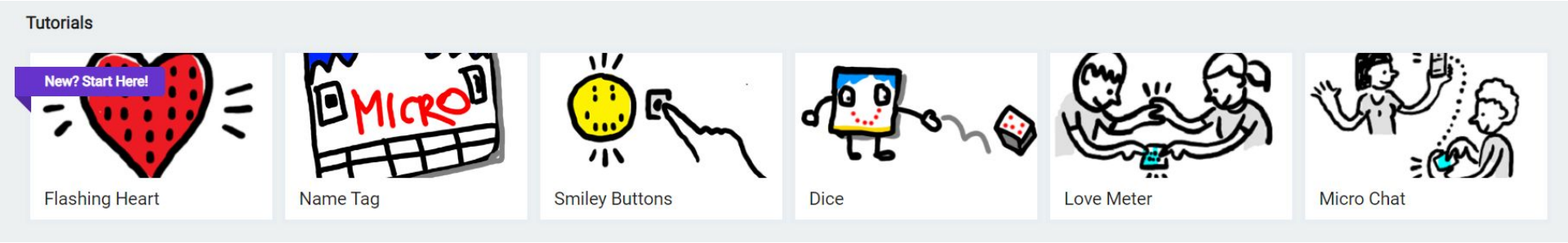
Flash your student response system to your microbit

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.



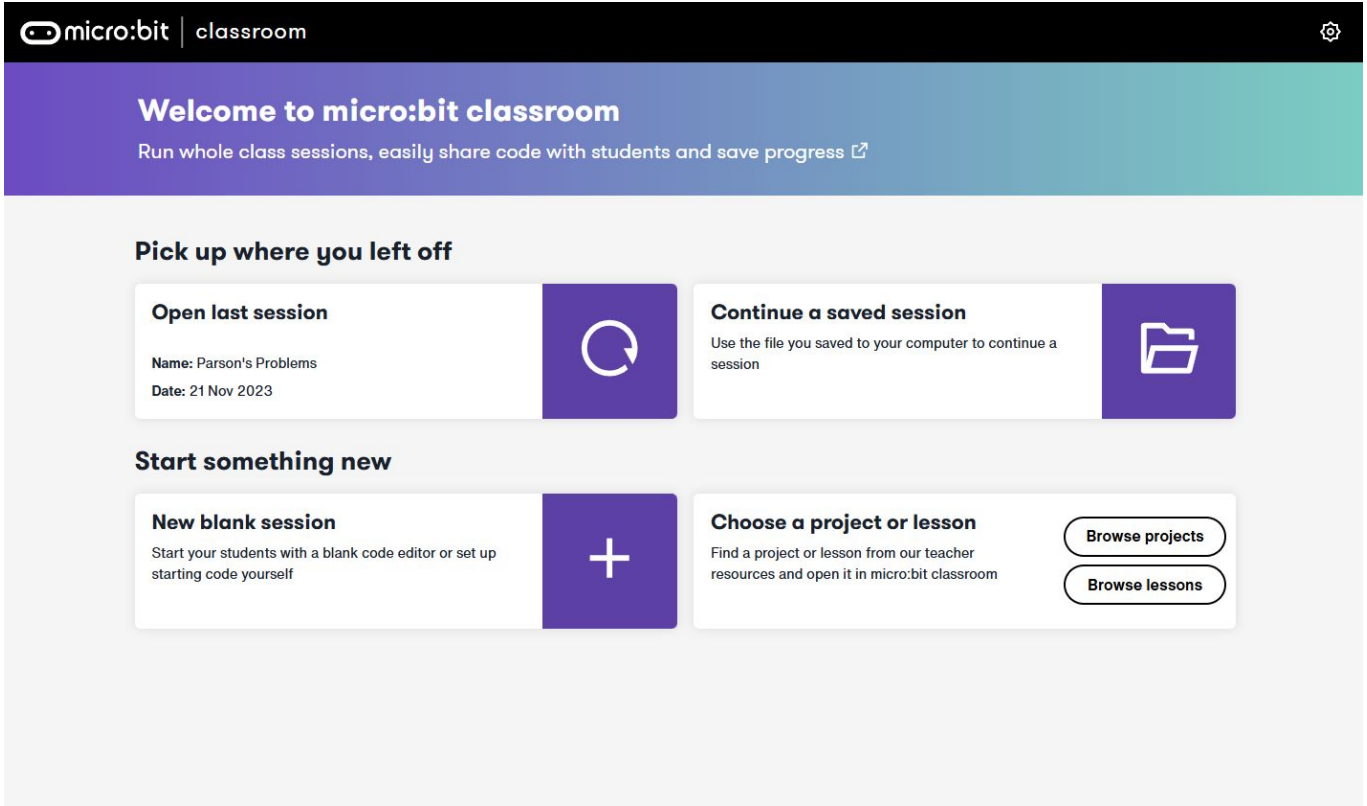
Classroom management

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

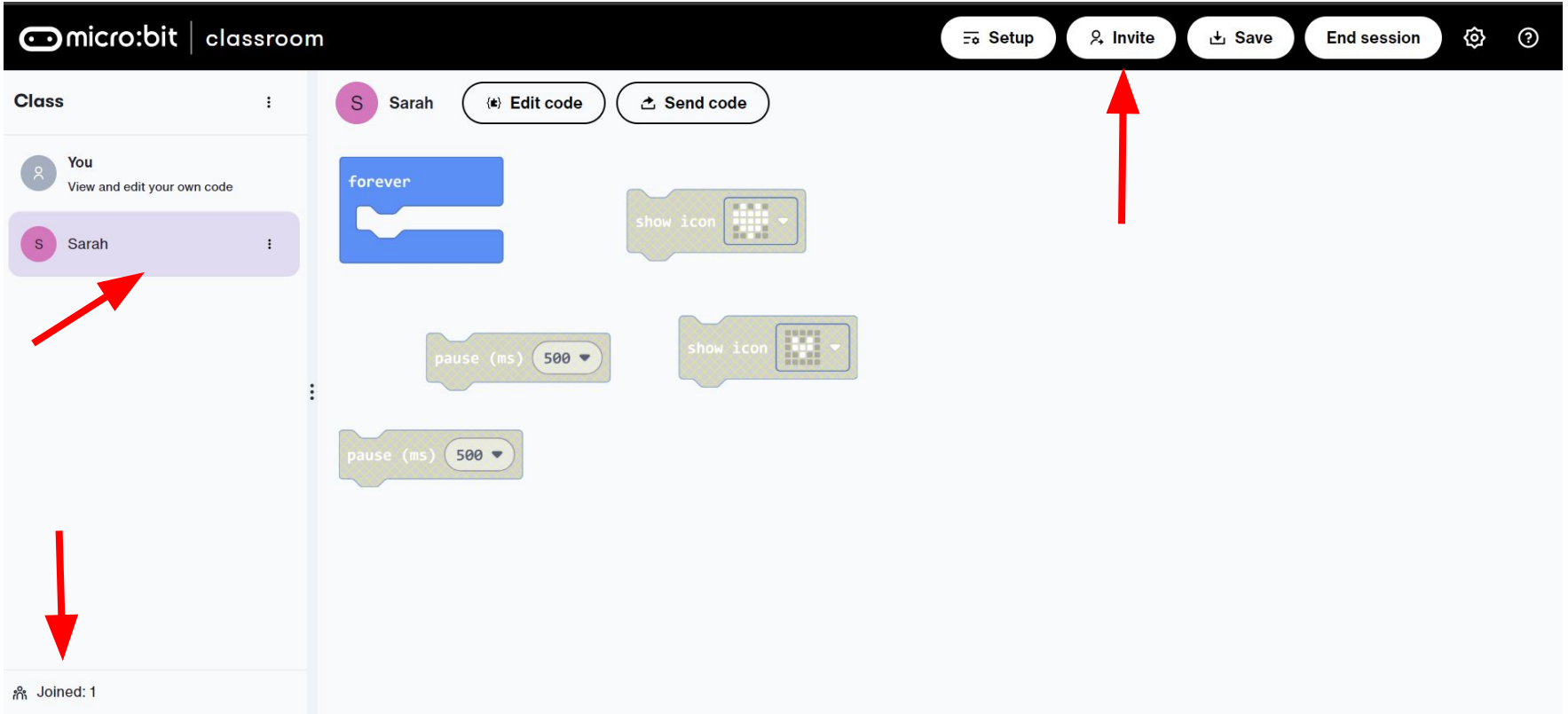
- Set up programs and share them with your pupils
- View pupils' code, as they create it, from your device
- Share one pupil's code with the class on your whiteboard
- Lock pupil screens
- Save work to continue it on another day
- Save a screenshot of pupil work – useful for assessment and evidence

https://classroom.microbit.org/

Opening micro:bit classroom



Easy to invite pupils to your classroom



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