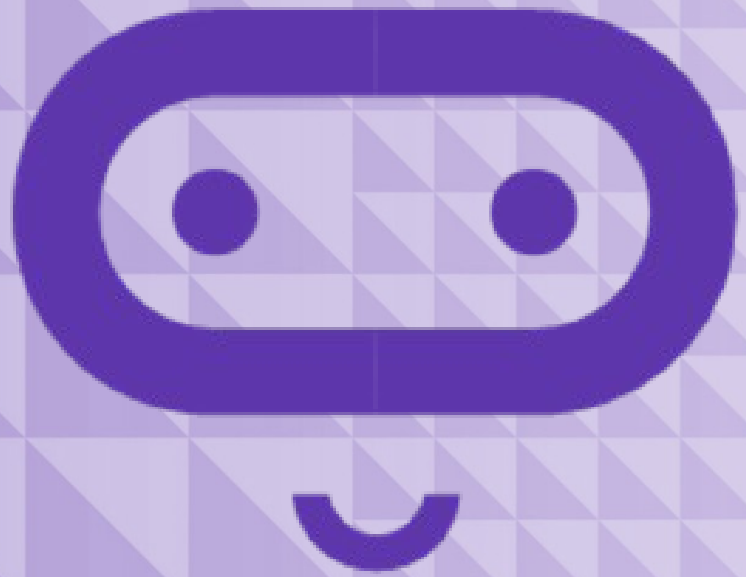


Unit 2: Algorithms

Microsoft

Lesson A

How computers function



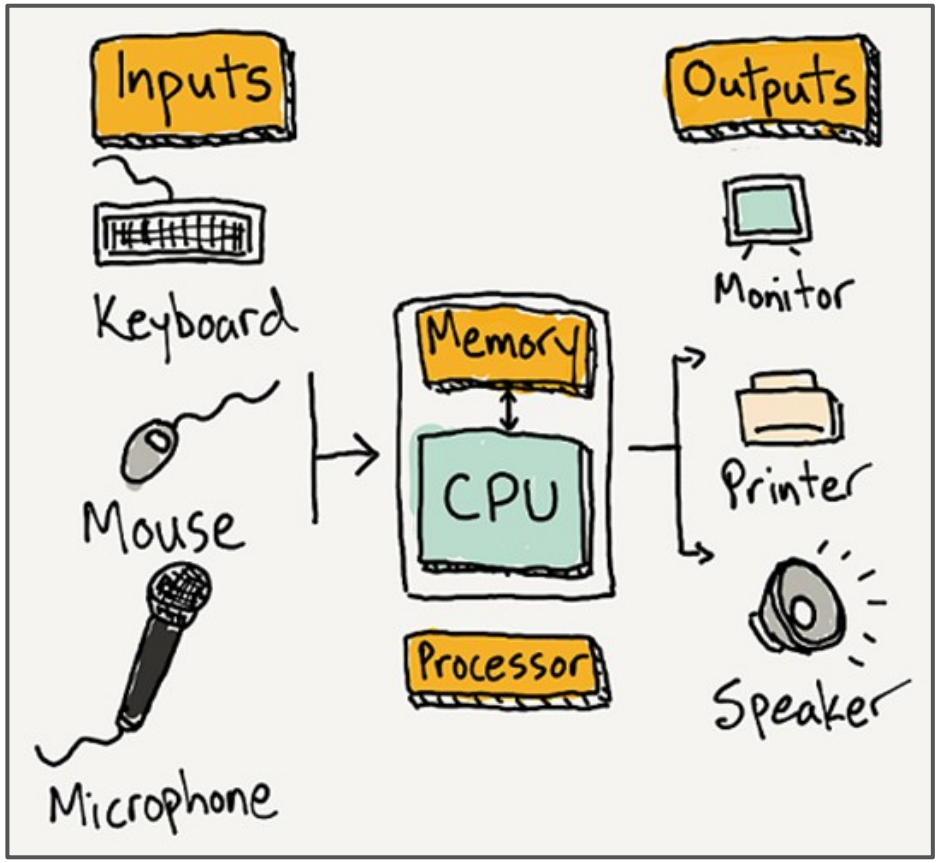
What we'll learn in Lesson A

- The four parts of a computer
- Functions
- Conditionals

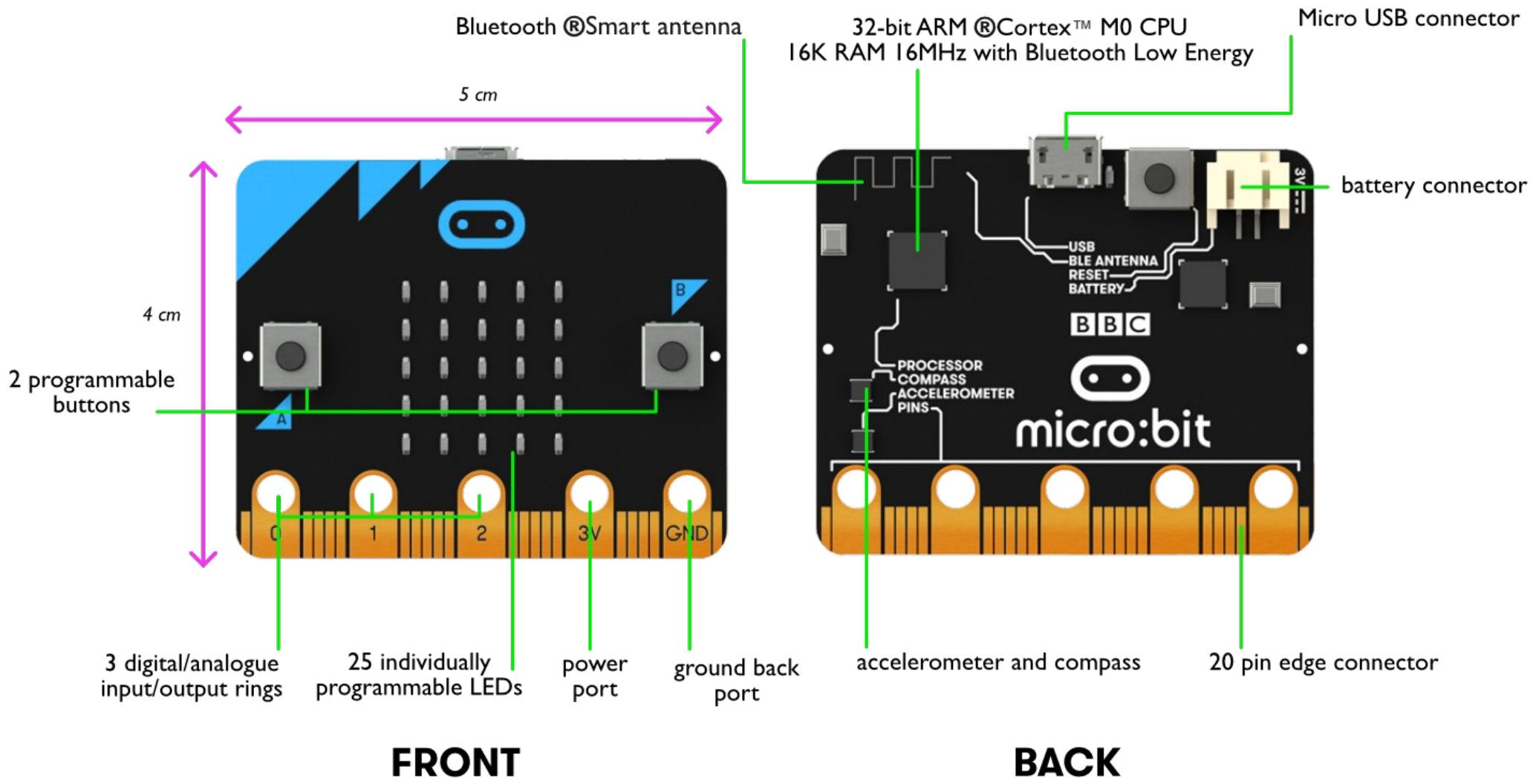
What is a computer?

There are four main parts to a computer:

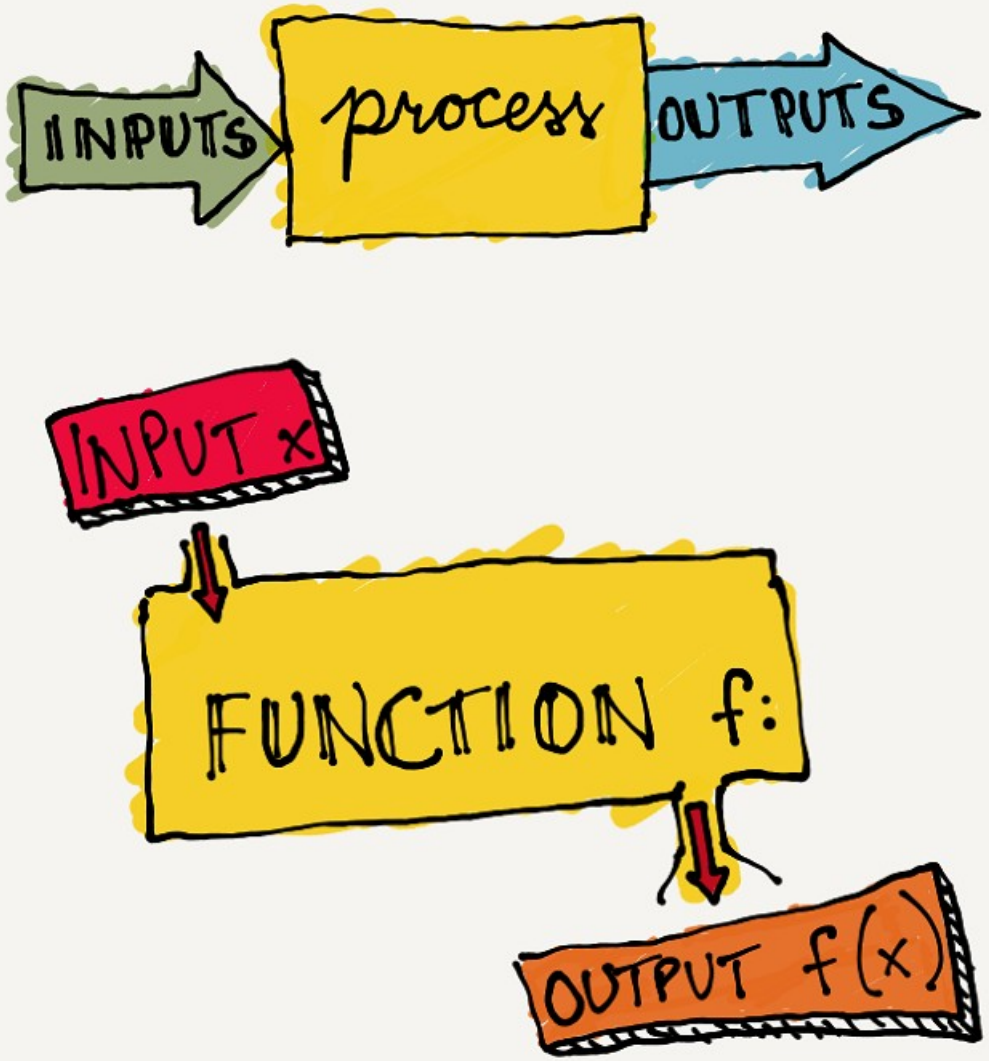
- **Processor:** It's what the computer uses to process and transform information. Also known as the CPU (central processing unit).
- **Memory:** How the computer remembers things. There are two types of memory:
  - **RAM** (random access memory) -The computer's short-term memory
  - **Storage** (hard drive) - The computer's long-term memory
- **Inputs:** How a computer takes in information from the world.
- **Outputs:** How a computer displays or communicates information.



The micro:bit is a computer



Unplugged activity: What's your function?



Microsoft

What's your function?

- Player A
- Player B
- Take turns being the "Function Machine".
- Function Machine's job is to take input, process it, and output the result.
- The other player inputs values and must guess what the function is based on the output.

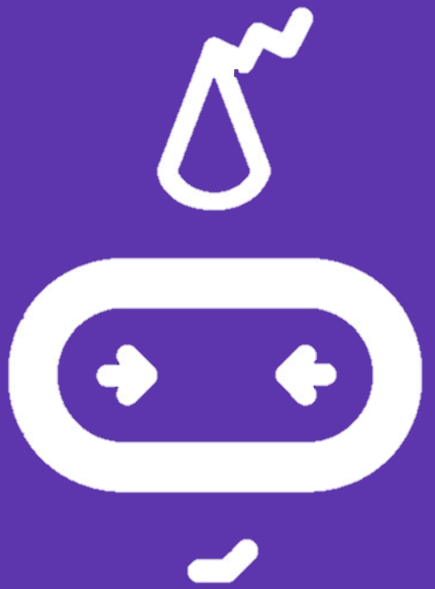
Unplugged activity: Crazy conditionals

- Each student receives a conditional statement – for example, “IF someone stands up, THEN clap 3 times”.
- When you see BEGIN appear on the board, turn over your statements and follow their direction.
- Game stops when the word STOP appears on the board.



Let’s review

- What are the four main components that make up any computer?
- How many programmable buttons are on the micro:bit?



- The four components of a computer
- Functions
- Conditionals



Next time: Lesson B

- Code a happy face and a sad face
- Assess our learning with a quiz



Lesson B

Code with event handlers

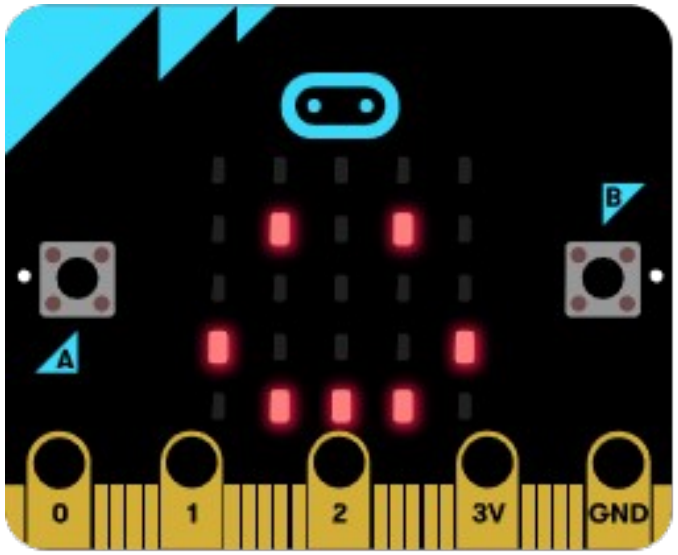


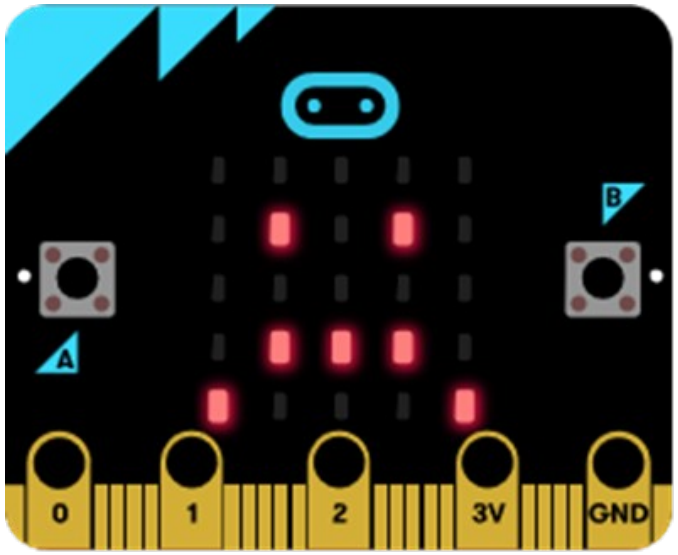
What we'll learn in Lesson B

- Make your micro:bit smile
- How much we have already learned

Happy face, sad face

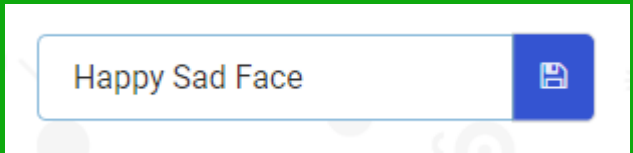
- Starts with a blank screen
- Whenever the user presses button A, display a happy face
- Whenever the user presses button B, display a sad face



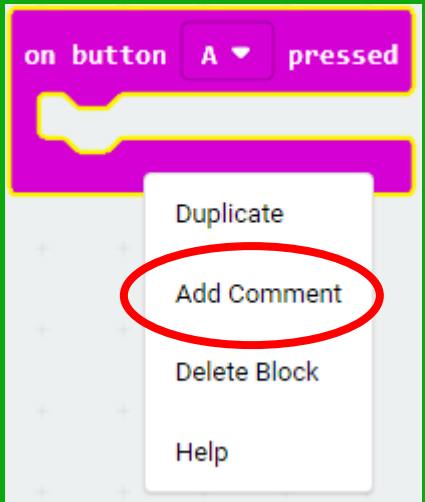


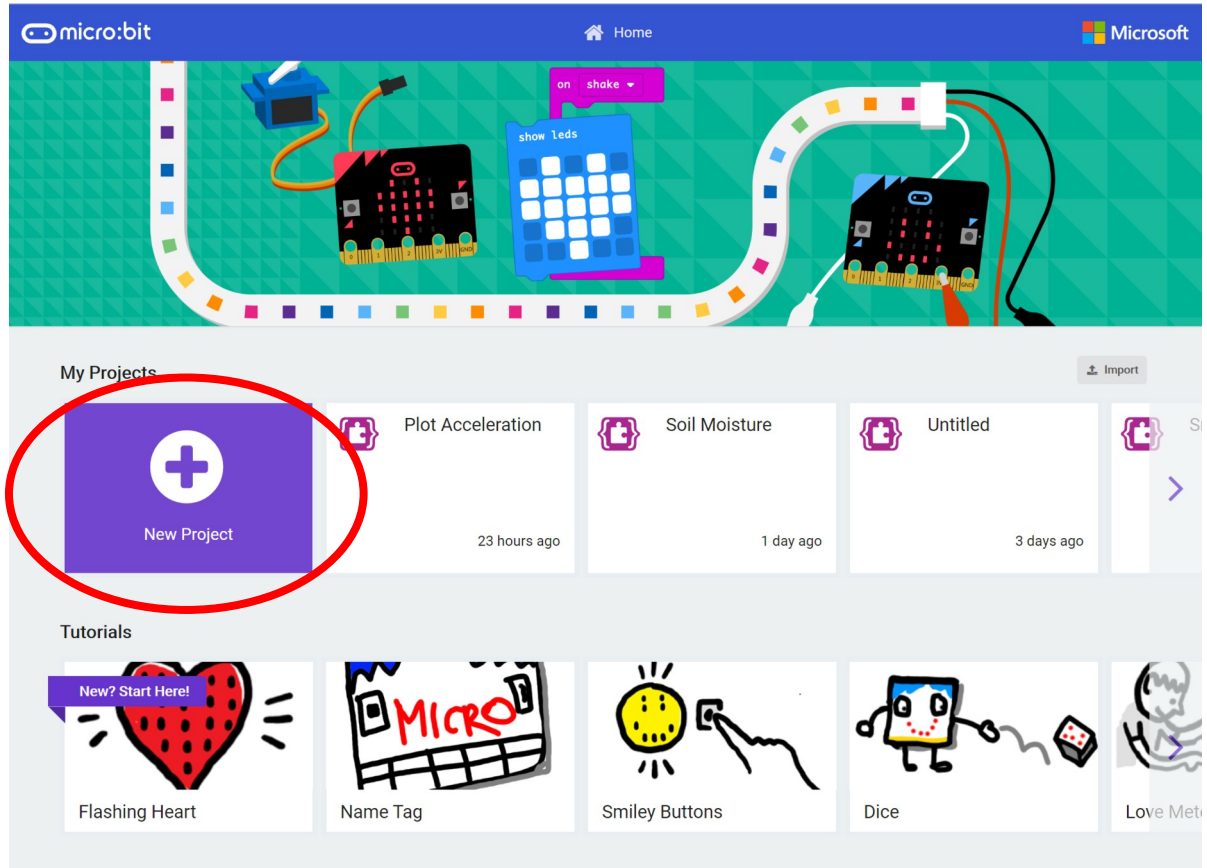
In MakeCode…

1. Create a new project
2. Name your Project



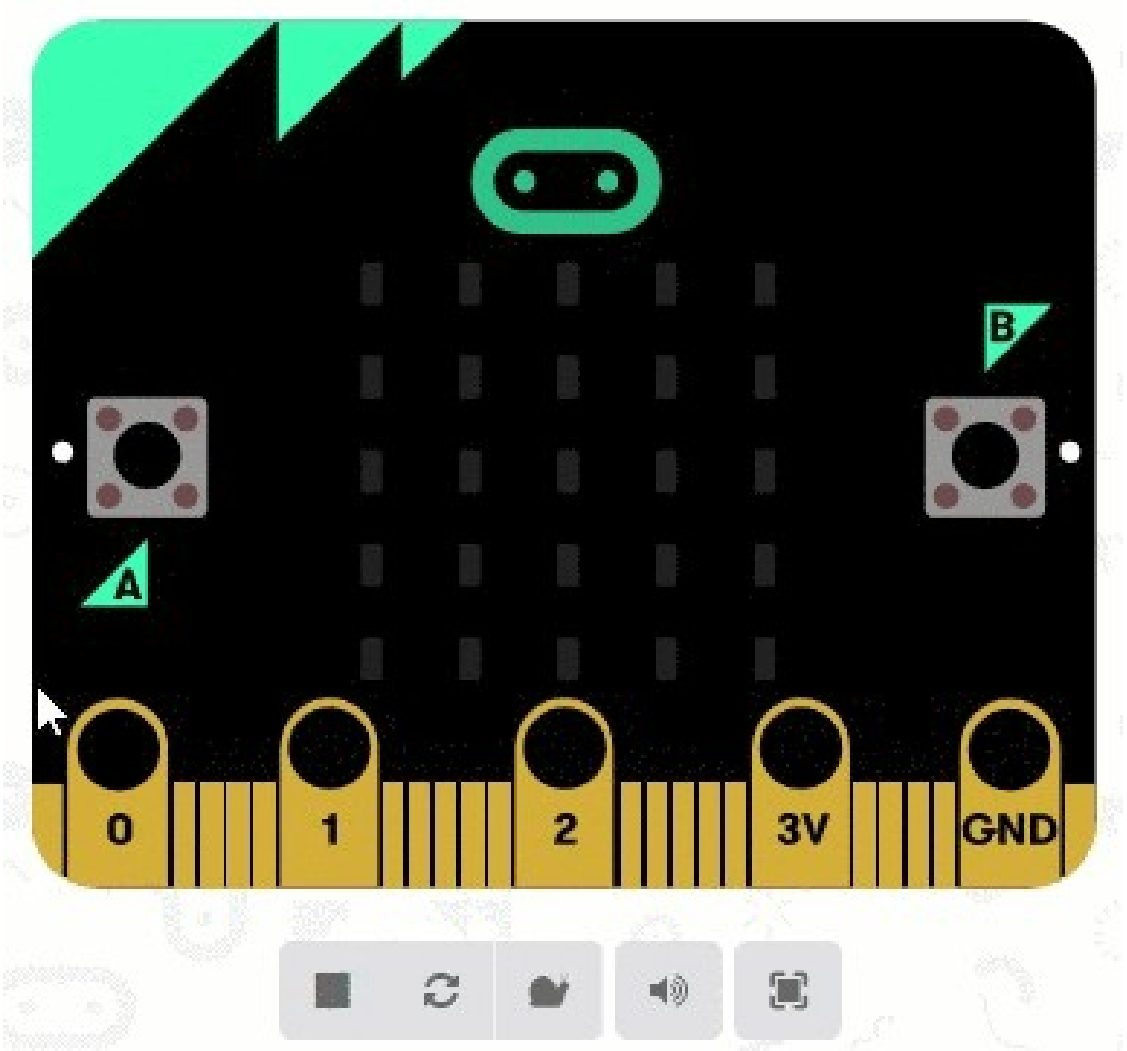
3. Add a comment to your code



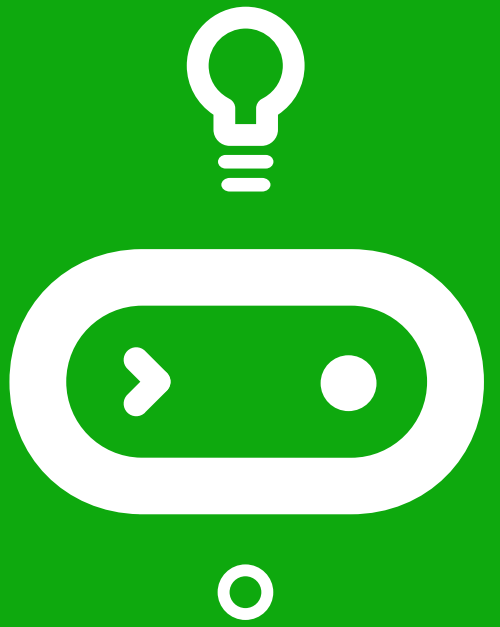


When you're done…

- Test your program in the Simulator first.
- Download to the micro:bit and press Button A, then press Button B.
- Save your program and/or share it.



Time for a quiz!



What we learned in Lesson B

- Make your micro:bit smile
- How much we have already learned

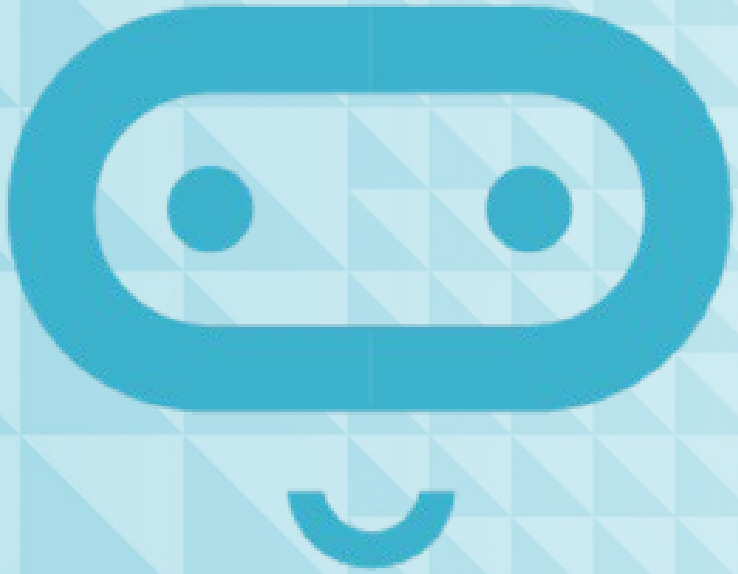


Next time: Lesson C

- Fidget cube



Lesson C
Fidget cube



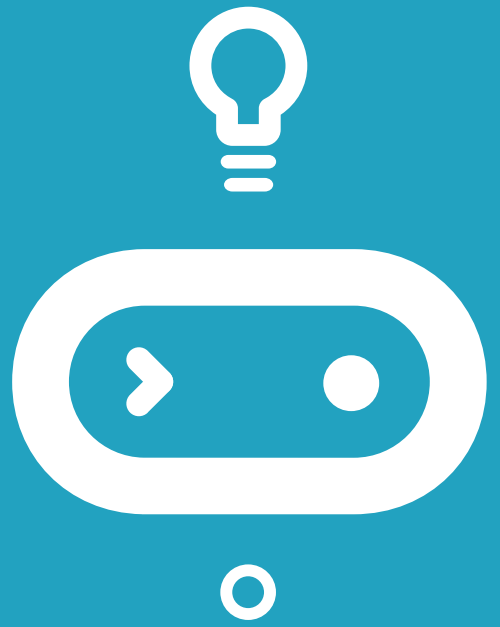
What we'll learn in Lesson C

- Code a fidget cube with your micro:bit

partner.

Project modification ideas

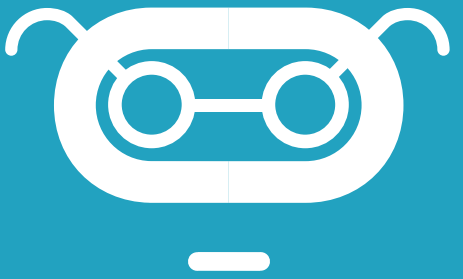
- Add more inputs and more outputs:
  - Use more than four different types of input
  - Use other types of output (other than LEDs) such as sound



Reflection Diary

Compose a diary entry addressing the following:

- What inputs and outputs did you use?
- Describe your program and how it works.
- Include at least one screenshot of your program working.
- Share your project to the web and include the URL in your diary.



What we learned in Lesson C



- To use coding to make a fidget cube with your micro:bit