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What is a micro:bit

Lesson 1

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What the Lesson Will Cover

- Introduction to the course
- Theory and project lessons
- Success criteria
- Gracious professionalism

Theory lessons and project

Theory lessons

- Learning about core theory
- Covers computational techniques
- Includes activities with success criteria
- Typically done individually

Projects

- Group tasks (typically groups of 4)
- Requires teamwork and communication
- Must work in parallel
- Clear success criteria for both software and hardware
- Typically involves designing and building a product to solve a problem

Success criteria

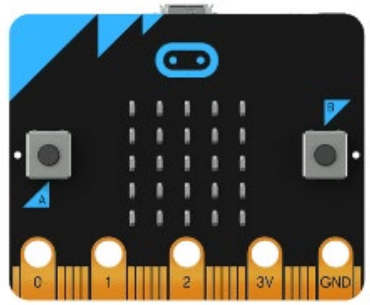
- These are the key objectives for the lesson/project
- You need to plan your time to meet these criteria
- Use these to check progress

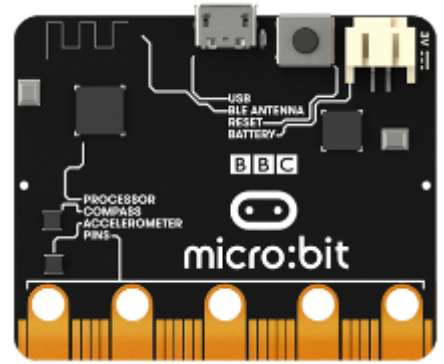
Objectives

- Be able to identify the key features of a **micro:bit**
- Apply sequence and iteration coding techniques using MakeCode
- Understand how to upload resources to the micro:bit

What is a micro:bit

- The micro:bit is a pocket-sized computer developed by the BBC
- It has a 25 red LED matrix on the front along with 2 input buttons, A and B
- It has a host of **sensors** built in including temperature, light, compass and acceleration
- It supports Bluetooth LE (BLE) & Bluetooth radio for communication other devices or Internet of Things (IoT)
- Through the input pins it can communicate with a range of additional hardware



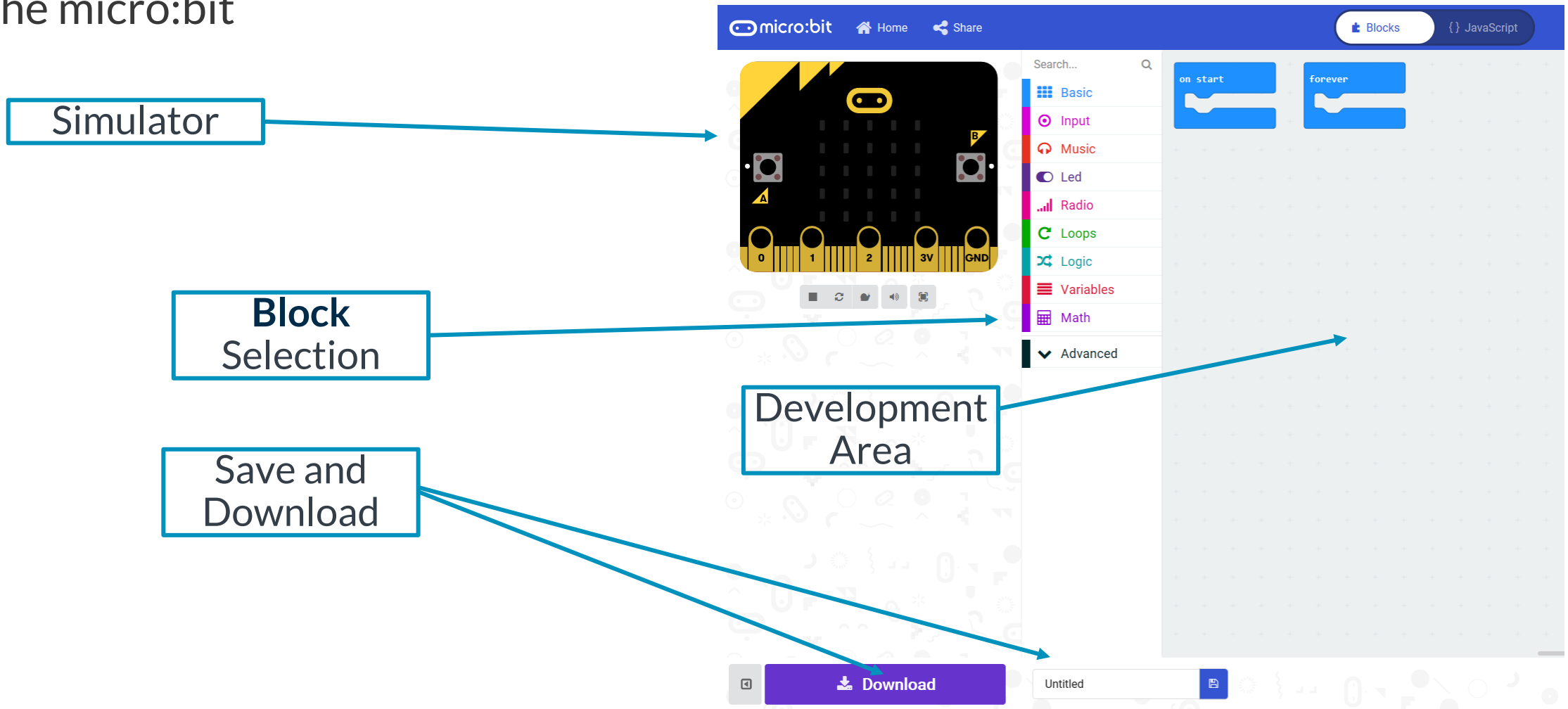


Fail Early, Fail Often

- Code development at all levels is challenging
- You will make mistakes, even 'Rock Star Coders' like Steve Wozniak, Jeff Minter, Dennis Ritchie, etc all made and continued to make mistakes
- 'Success is buried in the garden of failure – So keep digging' *Rick Wakeman*

MakeCode

- https://makecode.microbit.org/ is the website for developing applications using the micro:bit



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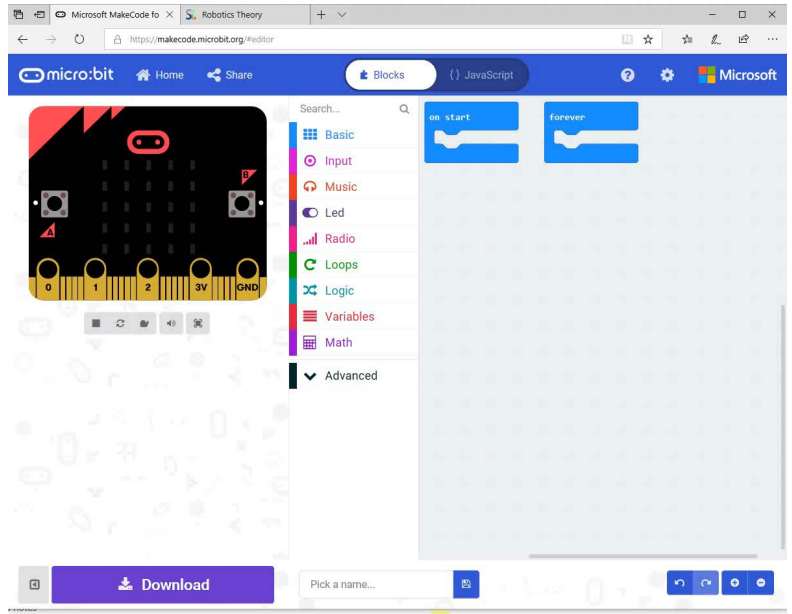
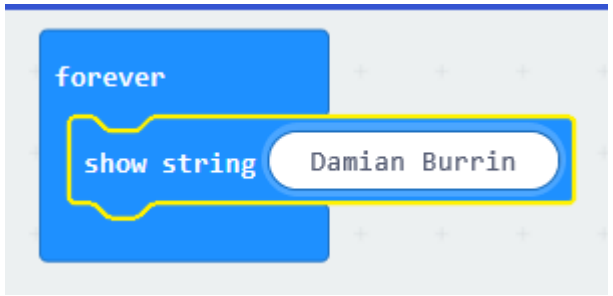
First App – Scrolling Name Badge

There is a four-step development process for working with MakeCode

1. Plan your idea
2. Build the Blocks
3. Test in the simulator
4. **Flash** the file



- Plan – I want to scroll my name on the micro:bit
- Build - Use the block example to the right or the video to create your blocks
- Test – Does it scroll on the simulator
- Flash – Transfer the file to the micro:bit



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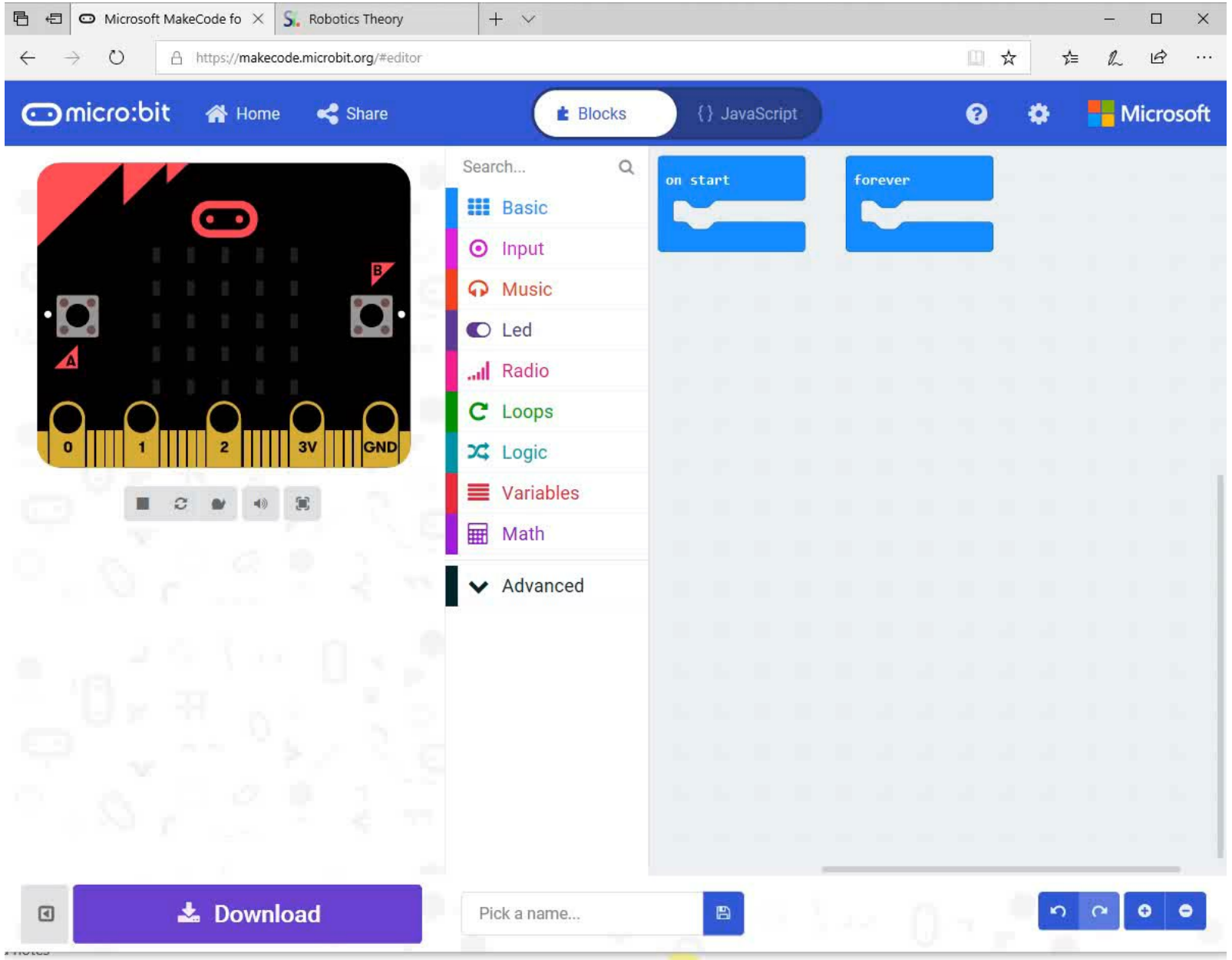
Video



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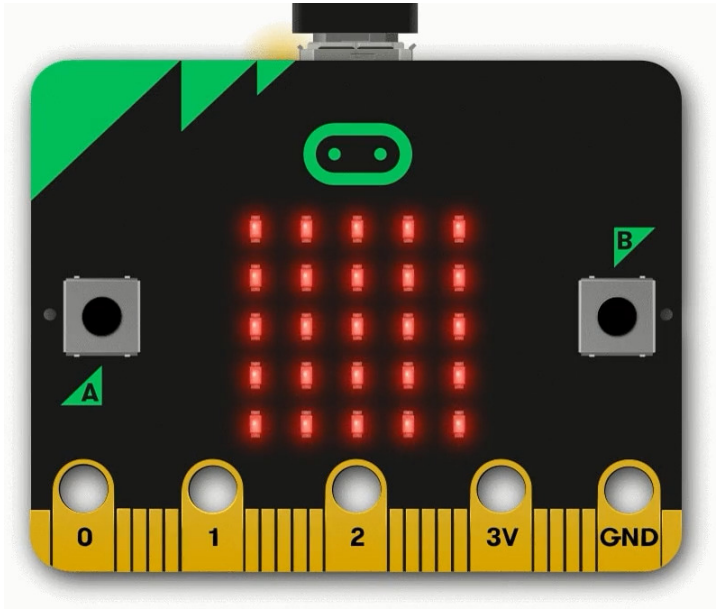
Step by Step

- Go to https://makecode.microbit.org/
- Click on **Basic** and drag the ***show string*** block
- Change the test **string** to your name by double clicking
- Check it works in the simulator
- Give the file a name
- Make sure your micro:bit is plugged into a USB port
- Download and flash
- The program will now run on the micro:bit



Success Criteria

- Why does it never stop? – try using the repeat block to make to scroll a fixed number of time
- Use the built in icons to display a picture of a heart
- Combine the big and small hearts to create a pulsing heart

Predict & Investigate

What will happen if I add a delay before or after my name?
How can I change the length of the delay?

Why does it never stop? – try using the repeat block to make to scroll a fixed number of times

Use the built in icons to display a picture of a heart

If you want more control over images, don't use the built in icons but design your own with ***show led*** block

Combine the big and small hearts to create a pulsing heart

Upload, test, how could it be improved? Consider the use of delays

Thank You
Danke
Merci
谢谢
ありがとう
Gracias
Kiitos
감사합니다
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