Bringing Out a Bit of Making with Micro:bit and Code

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Agenda

- Overview of the Micro:Bit and basics
- Basic commands
- Downloading the .hex file and running it on device
- Game design
- Extension activities
- Cross-curricular ideas
About

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Overview

What is it?
- A pocket-sized codeable computer
- 25 red LEDs that light up, flash messages etc.
- Has two programmable buttons.

Other features
- Can use as a games controller
- On board motion detector
- Built in compass
- Bluetooth connectivity
Links we’ll use in the session

1. Example projects
   a. Step counter
   b. Teleporting duck
2. Learn more about the features of the micro:bit
3. Connecting your micro:bit
   a. Get started
   b. Update your firmware (if needed)
4. Home Learning projects
5. Make it: code it
   a. Magic 8-ball
6. Exploration/tinker time
   a. Try out more make it: code it projects
   b. Explore free lesson plans
   c. Tinker with design challenges
Benefits of teaching with micro:bit

- Introduction to Coding
- Design Thinking and Product Design
- Prototyping and Testing
- Basics of Electronics and Sensors
- Teamwork and Collaboration
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Video Game Design
Micro:arcade kit
Virtual Simulator

The JavaScript simulator allows you to test and execute most BBC micro:bit programs in the browser. It allows you to emulate sensor data or user interactions.
Activity 1: Smiley Face

**Task:** Make a smiling face, then run it on the emulator. What other shapes, pictures can you get it to display?

**Challenge:** Now try running your code on the device itself (you will need to download the code and drag the .hex file to the Micro:Bit folder).
Activity 3: Scrolling name badge

Task: Make yourself a scrolling name badge! How about using a different command (e.g. ‘on shake’).
Challenge: Can you make the dice pick from 12 numbers? Can you run it based on a different input command?
Activity 5: Game of chance

**Task:** Make a simple game for a peer to play whereby they have a 50/50 chance of winning depending on which button they press.

**Challenge:** Can you add a different condition (e.g. ‘on shake’ or when button a and b are pressed together it displays the words “try again”).
Activity 6: Rock, Paper, Scissors

**Task:** Make a version of ‘Rock, Paper, Scissors’ to play against a partner!
Activity 7: Make a thermometer!

**Task:** Make a thermometer by adding a ‘temperature’ variable
Activity 8: Rock, Paper, Scissors

**Task:** Extend earlier version of ‘Rock, Paper, Scissors’ to include selection (i.e. output will only happen if certain condition is met otherwise something else will happen instead).

Language of selection ‘if, then and else’
Activity 9: Fortune Teller
(Project 3 from Code Club Micro:Bit projects)

Challenge: Can you make your Micro:Bit say something like ‘Maybe’ or ‘Ask again’ if the answer is 2. To get this working, you’ll also need to change your code to choose a random number between 0 and 2! Tip: You can right-click on a block to duplicate the block and its contents
Conditional Selection

Activity 10: Making a compass

Task: Can you make use of the Micro:Bit’s motion detector to create your own Compass
SDGs Design Challenges

Students can design and make a solution to a problem that affects your community.
Thanks for coming

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