Meet the tiny computer workbook

COURSE OVERVIEW

This course introduces the BBC micro:bit and how it is the ideal tool for teaching computational thinking and computer systems in a creative way. It explores the main input and output features on the micro:bit, specifically the buttons and the LED display.

There are several core computational thinking and programming concepts developed in this course. A useful glossary of key terms is available with the course materials.

USING THIS IN YOUR CLASSROOM

There are **three supported coding projects** in this course that are suitable for sharing with your students as well as other ideas and animations suitable for you to use. We have collated the ideas below.

What you need

Equipment:

- Computers (with Internet access)
- The MakeCode editor (ideally using Google Chrome or Microsoft Edge as your browser)
- Some BBC micro:bits to test the code (optional as you can use the online simulator)
- A USB cable (if using a computer & micro:bit) or a battery pack (if using a tablet & micro:bit)

Resources:

- **Student planning sheets**. These can be downloaded from the course materials page as a zip file and contain some worked examples to support your teaching.
    - Make a Smile project - LED planning grid
    - Emotion Badge project - algorithm planning sheets *(available as scaffolded frame or independent writing)*

- **Project code**
    - Make a Smile (https://mbit.io/pd-smile-code)
    - Animate a Smile (https://mbit.io/pd-smile-ext-code)
    - Emotion Badge (https://mbit.io/pd-badge-code)

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Activity breakdown

INTRODUCTION	
	**01** **Watch** the micro:bit introduction (https://mbit.io/pd-microbit), processor animation (https://mbit.io/pd-processor) and the input/output animation (https://mbit.io/pd-input-output).
	**02** **Discuss** as a class what inputs and outputs they remember or have used already today.

GET PLANNING	
	**03** **Demo** completed Make a Smile project.
	**04** **Explore** different facial expressions, looking for what features are most expressive and change (such as eyes and mouth). This introduces abstraction (looking at the key features that change).
	**05** **Get planning** by sharing the LED grid planning sheet. Ask students to draw a happy face and one other expression.

CODING – MAKE A SMILE PROJECT	
	**06** **Share coding video** for Make a Smile project (https://mbit.io/pd-smile) You may also find it useful to share the Transferring your program to your micro:bit animation (https://mbit.io/pd-transfer) with your students. *Remember you can pause the videos when needed.*

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EXTENDING THE PROJECT – MAKE A SMILE ANIMATION PROJECT	
	**07** **Share coding video** for Animate your Smile project (https://mbit.io/pd-smile-ext) *Remember you can pause the videos when needed.*

CODING – EMOTION BADGE PROJECT	
	**08** **Get planning** by sharing the Emotion Badge Algorithm planning sheet and ask students to plan which emotions they want to show with which input.
	**09** **Share coding video** for Emotion Badge project (https://mbit.io/pd-badge) *Remember you can pause the videos when needed.*

EXTENSION ACTIVITIES	
	**10** There are lots of ways to extend learning from these projects, including: ■ Asking students to consider real world applications for the types of programs they have made

AFTER THIS COURSE

Try another course

After you have completed this course and shared the projects with your students, why not try another Professional Development course available through our learning platform.

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Follow us on Twitter @microbit_edu for all our latest news or sign up to free monthly newsletter which is packed with programming projects and lessons that you can share with your students.

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