# Lesson 1 – Introduction to the Course

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| The Big Picture – Why is this Relevant? | Learning Objectives |
| * Physical computing is the future * Programming is an important skill; learners demonstrate much more creativity and engagement when working with physical devices * The micro:bit is a microcontroller. Microcontrollers are used in a wide range of Internet of Things (IoT) connected devices * Learners will gain their first exposure to programming the micro:bit which will introduce them to a number of key programming concepts | * Understand what a micro:bit is * Understand how the course is to be assessed * Understand the current knowledge that learners have of the topics covered in the course * Understand how to use the MakeCode website * Understand the purpose of the different components on the micro:bit including sensors * Know that a .hex file is a micro:bit program * Make a simple program, download it to a PC and upload the program to a micro:bit * Use some basic blocks in MakeCode to make a name badge program |
| Links to Program of Study | |
| * Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems * Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems | |
| Engagement – How Can I Engage Learners? | Assessment for Learning |
| * Learners will be able to complete some problem-solving activities through completing the baseline assessment * The practical task makes code instantly visible on the micro:bit. Learners will have fun with changing the code and making it display their own name * Inspire learners by explaining what can be done with a micro:bit and how it can be programmed using blocks and real code | **Expected Progress:**   * Learners will understand the structure of the course and how it is assessed. They will create a program and be able to upload the hex file to the micro:bit   **Good Progress:**   * Learners will be able to complete most of the baseline assessment questions * Learners will attempt the stretch tasks and complete some of them successfully   **Exceptional Progress:**   * Learners will successfully complete the baseline assessment * Learners will complete all of the stretch tasks |
| Key Concepts | Key Words |
| * micro:bit programs can be written on the MakeCode website * A micro:bit is a microcontroller * A program is a file that needs to be uploaded to the micro:bit to work * Programs should be named appropriately * Programs can be developed iteratively | * micro:bit * Microcontroller * Program * USB * .hex * Download/upload * Copy and Paste * Blocks * LED |
| Differentiation | Resources |
| Most learners will be able to follow the instructions, however adding a program to a microcontroller may be a new concept to some learners and they may need support getting the files onto the micro:bit initially. | * Lesson 1 ppt * Lesson 1 Input and Output Devices Worksheet * Baseline Assessment * Name Badge Task Instructions * 1 micro:bit per learner * 1 USB cable to connect the micro:bit to a PC * A PC * Access to <https://makecode.microbit.org> |
| Lesson Flow | |
| * Introduce students to the course. Highlight the project-based learning approach along with some of the exciting projects that they will be working on * Show students the physical micro:bit computer. Explain that the micro:bit is a microcontroller. Students should try to identify some of the input and output devices which are included in the micro:bit. The image of the micro:bit on the ppt could be used to support this. The worksheet gives them a structure for this exercise * Discuss how the course will be assessed along with the grades that are available * Highlight how specific awards will be made at the end of each project. The ppt could be used to support this * Learners should complete the baseline assessment. * Introduce the micro:bit and explain what it is * Describe the sensors on the micro:bit and the LED output * Briefly describe the name badge project and show learners where the resources are located on the PC * Learners work through resource independently; teacher intervenes where appropriate * Encourage more advanced learners to attempt the stretch tasks once they complete the main task | |
| Making | |
| There are no making activities in this lesson. | |