# Lesson 4 – Event Handling and Buttons

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| The Big Picture – Why Is This Relevant? | Learning Objectives |
| * We are surrounded by a world of buttons which are an essential part of physical computing and used to control and respond interactions to events * Event handling and selection enables programs to respond in different ways with different outcomes | * Know what event handling is * Understand what selection is * Use buttons to add control to a program * Learn how to add responses to button presses. * Learn how to combine button presses |
| Engagement – How Can I Engage Learners? | Assessment for Learning |
| * Learner and teacher discussion about buttons and their use in control and the real world. * Real world application – pressing buttons on your phone / computer / games console is a similar principle to the micro:bit buttons. You can use the micro:bit as a game controller * The project is completed in pairs and involves an interview. Learners can ask personal / gossip questions | **Expected Progress:**   * Learners will build a program that responds to button presses   **Good Progress:**   * Learners will know what selection is * Learners will add a number of button responses and customise the response   **Exceptional Progress:**   * Learners will explain what event handling is * Learners will complete the stretch tasks |
| Links to KS3 Programme of Study | |
| * use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions * design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems | |
| Key Concepts | Key Words |
| * Selection * Buttons * Event handling – control and response to buttons * Interrupts | * Selection * If, elif, else * Event handling * Control |
| Differentiation | Resources: |
| Most Learners will be able to follow the example program and adapt it to include their own responses. Working together on the project will offer support and paired groups could be organised to include a confident Learner. The combining of Button A and B may require support as will ensuring the correct indentation levels. | * Lesson 4 ppt * Lesson 4 Activity Sheet * Example Python files * 1 micro:bit per learner * 1 battery pack for micro:bit * 1 USB cable to connect the micro:bit to a PC * Access to <https://python.microbit.org/v/3> |
| Lesson flow | |
| * Introduce the concept of buttons, what are they? Where are they used? * Ask learners to list buttons and their uses * Explain that code can be used to add responses to button presses * Show the code on Slide 5 * Introduce the concept of selection, explain that as a user you can select a particular outcome by pressing a button * Discuss this in relation to a game controller * Learners can work out what the program code does and explain to each other what happens when a button is pressed. * Learners could copy out the program code and try it out * Recap selection referring to if, elif and else. * Explain the process of event handling and the use of an interrupt. * Pair up Learners * Learners work through activity resource independently, teacher intervenes where appropriate | |
| Making | |
| There are no making activities in this lesson. | |