# Lesson 20 – Introduction to Python

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| The Big Picture – Why Is This Relevant? | Learning Objectives |
| * Students have used a block programming language so far in this course. In this lesson they will explore how applications are written in a text-based language. They will be able to map a few micro:bit blocks to Python | * Understand the meaning of the term sequence * Understand how to write a program which takes an input and produces an output in a text-based programming language |
| Engagement – How Can I Engage Learners? | Assessment for Learning |
| * Learners will enjoy creating their first ever computer program using a text-based language. They will understand how professionals write programs. | **Expected Progress:**   * All learners will be able to write a program in Python which asks the user for an input and then outputs a personalised greeting   **Good Progress:**   * Learners will understand how inputs are stored in a named variable which can then be used later in the program. They will be able to independently use sequence structures to expand their program * They will understand how to write a Python program to run on the micro:bit   **Exceptional Progress:**   * Learners will be able to expand the core program which uses sequence to also use selection statements. They will independently learn how to use an IF statement to create a password entry system * They will be able to expand a given program to display multiple images on their micro:bit using a Python program |
| Links to KS3 Programme of Study | |
| * Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems * Design and develop modular programs that use procedures or functions | |
| Key Concepts | Key Words |
| * The print subroutine produces an output * The input command takes a user input and stores it under named location in memory which we call a variable * When a program follows the same path through it each time it is executed it uses sequence code structures * Python.microbit.org allows you to write Python programs which will run on the micro:bit. | * Print * Subroutine * Def * Variable * Input * Text-Based Language |
| Differentiation | Resources |
| Any learners who are able to complete the core task using sequence should move onto the extension task which asks them to independently explore how a password entry system can be designed using IF statements. | * Lesson 20 ppt * Python Worksheet * Python IDLE or <https://repl.it> * Micro:bit * Access to <https://python.microbit.org> |
| Lesson Flow | |
| * Using the lesson 20 ppt introduce students to the concept of a text-based language. Explain the key similarities and differences between block and text-based languages. * Demonstrate how to create the Hello World program. Explain how subroutines can be used to structure programs. Students should then write this program for themselves. Initially the code will not run as they won’t have called the procedure. * Using the ppt for support demonstrate the structure of an input statement. * Once you have worked through the ppt and students have functioning programs they should then work through the Python worksheet. * Demonstrate how to use the online Python IDE to write programs for the micro:bit | |
| Making | |
| There are no making activities in this lesson. | |