# Lesson 21 – Storage and Files

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| The Big Picture – Why Is This Relevant? | Learning Objectives |
| * Files are used to store data, financial, game saves, music, images, videos to name just a few. The micro:bit has a storage system which can be used to store files. | * Know how to create, open and write to a file * Display and read the contents of the file * Know how to list the names of the files stored on the micro:bit |
| Engagement – How Can I Engage Learners? | Assessment for Learning |
| * Creating and writing to files is fun and they can be hidden and shared, making a spy theme. * Students could share gossip or secrets via the files which will intrigue the learner to write the code to retrieve the contents of the file. | **Expected Progress:**   * Learners will create and write to a text file   **Good Progress:**   * Learners will read a file and display the content * Learners will list all the names of files stored on the micro:bit   **Exceptional Progress:**   * 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 * understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits | |
| Key Concepts | Key Words |
| * Creating a file * Writing to a file * Reading a file contents * Display the contents | * Storage * Secondary storage * Read, write, display * OS * File system * Flat-file * Directories |
| Differentiation | Resources |
| Most learners will be able to follow the example program and adapt it. The code requirements in terms of indentation and syntax can cause errors. Teacher support is suggested or paired group work. | * Lesson 21 ppt * Lesson 21 Activity Sheet * Sample Python code * 1 micro:bit per learner * 1 battery pack for micro:bit * 1 USB cable to connect the micro:bit to a PC * Access to [micro:bit Python Editor (microbit.org)](https://python.microbit.org/v/3) |
| Lesson Flow | |
| * Introduce the concept of files and their use to store data * Discuss different file types and their uses * Explain about storage and the micro:bits capability * Show the difference between flat-file and directory systems * Explain the warning that flashing the micro:bit will delete any text files * Learners create a file and write to it * Learners write code to display the contents of the file * Learners write code to display file names * Teacher to support where required * Learners to complete activities and stretch task | |
| Making | |
| There are no making activities in this lesson. | |