Scheme of work

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| **Unit** | Small Basic | **Guided learning hours (approx.)** | 5-6 hours |

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| **National curriculum strand(s):**   * 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. | **Unit overview**  In this unit, learners are introduced to the basics of computer programming using Small Basic. They will explore how to use variables to store data, apply arithmetic and comparison operators to perform calculations, and use selection statements to control the flow of a program. Through hands-on activities, learners will create simple programs that take user input, produce output, and respond to different conditions using IF statements. |

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| **Links to the Key Stage 4 curriculum:**  **GCSE Computer Science**   * Unit 2: Computational thinking, algorithms and programming.   **WJEC GCSE Computer Science**   * Unit 1: Understanding Computer Science * Unit 2: Computer programming |

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| **Lesson No.** | **Topic** | **Lesson objective(s)** | **Learning components** | **Commentary** | **Stretch and challenge opportunities** |
| 1 | Variables | * To learn how to use Small Basic to write programs using code. | * To learn how to initialise variables, how to update them with an input and outputting its value. * To write code that allows the user to input data into a multiple-choice quiz program. * To write code that displays a welcome message for your multiple-choice quiz program. | * Inputting data * Variables/Constants * Writing algorithms with inputs and variables * Testing the algorithms in code form. * Write code to ask for user’s name and display message.   **Guided learning hours: 1 hour** | * Additional tutorials via the Small Basic website. * [Small Basic](https://smallbasic-publicwebsite.azurewebsites.net/tutorials) |
| 2 | Arithmetic operators | * To know the purpose of arithmetic and assignment operators in programming. | * To learn how to apply arithmetic operators using Small Basic. * To write code that will initialise the score in the multiple-choice quiz. * To write code that shows the final result of the quiz, once complete. | * Variables with numbers * Writing algorithms with inputs and variables using arithmetic operators. * Testing the algorithms in code form. * Write code to initialise score and show final result.   **Guided learning hours: 1 hour** | * Additional challenges provided on the worksheet. * Additional tutorials via the Small Basic website. * [Small Basic](https://smallbasic-publicwebsite.azurewebsites.net/tutorials) |
| 3 | Selection | * To understand the use of selection to solve problems. | * To know how and why selection is used in programming. * To know what is meant by an IF statement and the use of ELSE IF and ELSE. * To use IF statements to write the questions for your multiple-choice quiz. | * IF Statements * Writing algorithms with inputs and variables * Testing the algorithms in code form. * Write the code for each quiz question.   **Guided learning hours: 2 hours** | * Additional tutorials via the Small Basic website. * [Small Basic](https://smallbasic-publicwebsite.azurewebsites.net/tutorials) |
| 4 | Comparison operators | * The use of comparison operators in programming. | * To know different types of comparison operators and what they are used for. * To write code that will determine what the player has achieved using their score from the quiz. * To write code that shows the final result of the quiz, once complete. | * IF statements using numbers with comparison operators. * Testing the algorithms in code form. * Write the code to let the player know which award they have achieved.   **Guided learning hours: 1-2 hours** | * Attempt the additional activities stated in the project brief. * Additional tutorials via the Small Basic website. * [Small Basic](https://smallbasic-publicwebsite.azurewebsites.net/tutorials) |
| 5 | End of unit assessment | * Complete end of unit assessment * Mop-up of any missing work once the assessment is complete.   **Guided learning hours: 1 hour**  Link to assessment is in the Assessment folder. (Microsoft and Google version) | | | |