Topic: 9.4 Python Development	Duration: 6 weeks	Composite: Project

Key vocabulary:	Core knowledge questions	Powerful knowledge crucial to commit to long term memory	Links to previous and future topics
array data type integer debug float function IDE / IDLE iteration list logic error loop procedure parameter selection String subroutine syntax error Variable	1. What is programming? Programming is the process of writing a computer program. 2. What is syntax? Syntax are the rules of a programming language which must be followed in order to reduce errors occurring in the program code. 3. How are programs developed? By using the iterative process Design, Write, Test, Refine to produce successful programs in Python 4. What is a variable? A variable is a storage container for a value that can be changed. 5. What is sequencing? Sequencing is the order in which instructions are processed 6. What is iteration? Iteration is how programs repeat instructions. These can be count-controlled (FOR loop) or condition controlled (WHILE loop) 7. What is selection? Selection is how programs can be used when a decision needs to be made based on a condition. In Python this is achieved by using IF, ELIF and ELSE. 8. What is a subroutine? Subroutines are smaller, named sections of code that are written within a larger program. They are used to avoid having to duplicate code and to make programs more efficient. 9. What is a procedure? A procedure is a type of subroutine that performs a specific task. 10. What is a function? A function is a subroutine that manipulates data and returns a result into the main program. 11. What is a list? A list is a set of data values of the same type, stored in a sequence in a computer program.	• Programming refers to the art of writing instructions, known as **algorithms**, to tell a computer what to do • In order to make a program in any programming language, you need to think through the **sequence** of steps • **Iteration** refers to the repetition of a series of instructions. Python has two types, **count-controlled** (FOR) and **condition-controlled** (WHILE) • A **conditional** statement is a set of rules performed if a certain condition is met. In Python, the if and elif and else commands check for a condition (**selection**) • A **variable** stores specific information that may change. The most common variables in computer games for example, are score and timer • **Boolean logic** is a form of algebra in which all values are reduced to either true or false. The and, or, not statements are examples of Boolean logic. • A **subroutine** is a piece of code that is separate ot the main program that can be recalled and used again to avoid duplicating code. • A **list** is an array of data that can be manipulated.	• Links to 7.4 Python and 8.4 Programming Development units. • Links to GCSE Computer Science

We will develop these skills:

Impressive reading	Impressive speaking	Impressive writing	Resilience	Numeracy via:	Digital Literacy via:	Employability via:
Program syntax comprehension	Articulating where errors have occurred and how they can solve them.	Analysing code that has been written to assess how it can be made more efficient	The need to constantly edit and run a program until it is error free (debugging)	Understanding of different data types, how these can be calculated in Python as well as logical decisions to be made.	Programming a computer	Understanding how to program. Using core building blocks of programming. Utilising computational think skills and problem solving.