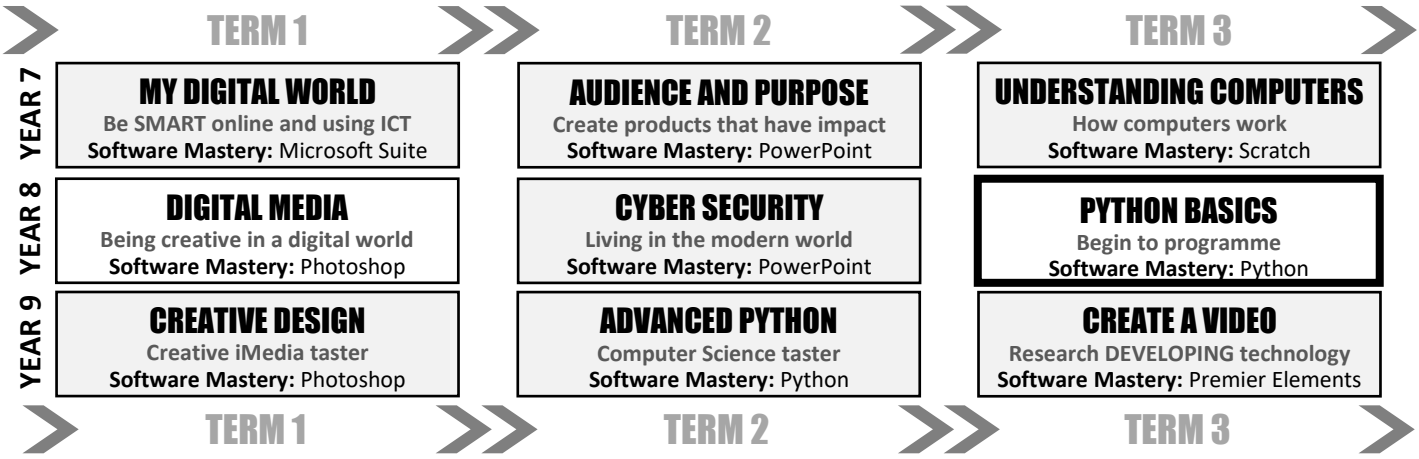
UNIT OVERVIEW & LEARNING JOURNEY

YEAR 8 – COMPUTING: TERM 3

PYTHON BASIC – Begin to program

OVERALL LEARNING JOURNEY FOR KEY STAGE 3 COMPUTING



This unit is an introduction to text-based programming using Python. This builds on the skills learnt in Year 7 where block-based programming was completed using Scratch.

Aim of this unit:
This unit will take the whole of this term to complete. Topics to be covered:

- The fundamental principles and concepts of computer science, including abstraction, logic, algorithms, and data representation
- Analyse problems in computational terms, and have repeated practical experience of writing computer programs to solve such problems
- Key algorithms that reflect computational thinking; use logical reasoning to compare the utility of alternative algorithms for the same problem
- How instructions are stored and executed within a computer system
- Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems

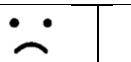
These lessons form a journey that starts with simple programs involving input and output, and gradually moves on through arithmetic operations, randomness, selection, and iteration.

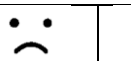
Assessment:
Each lesson contains tasks to complete independently. Some of the Python exercises will be logged online whereas others will be assessed on paper.

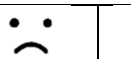
At the end of this unit there will be a 40-minute exam paper on all the topics covered this year.

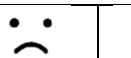
This test, as well as the skills demonstrated on Python will determine the final grade for this unit.

Homework:
Will be set at least once a fortnight with the expectation only 20 minutes is spent completing these. Homeworks will be a combination of written, research, investigative tasks.

DATE:			
RAG rate your understanding:			**LESSON 1: First steps**
			Code | Program | Programming language | Python | Execution | Interpreter

DATE:			
RAG rate your understanding:			**LESSON 2: Outputs Input and variables**
			Syntax | Functions | Print | Output | Input | Variable

DATE:			
RAG rate your understanding:			**LESSON 3 and 4: ChatBot Challenge**
			ChatBot | AI | Program | Turing | Comments | Infographics

DATE:			
RAG rate your understanding:			**LESSON 5: Data Types and Maths**
			Variables | Data types | String | Integer | INT | Syntax

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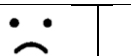
RAG rate your understanding:			**LESSON 6: Selection**
			Selection | Comparison | Operators | Variable | Integer | Syntax

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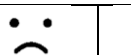
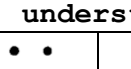
RAG rate your understanding:			**LESSON 7: Round and round**
			Iteration | FOR | WHILE | Loops | Variables | Conditions

DATE:			
RAG rate your understanding:			**AWE & WONDER: AI and machine learning**
			Facial recognition | Fingerprint recognition | Neural network | Self-driving cars | Sensors | Embedded | Camera | Push button | Rules | Decisions | Training data | Machine learning | Intelligence | Virtual assistants