| YEAR 9 | | Description | Levels covered | Skills & content covered | Skills & content revisited |
|---|---|---|---|---|---|
| COMPUTING | | | | | |
| AUTUMN 1 | Algorithms, pseudocode and flowcharts. An introduction to programming using Scratch. | Introduction to whole course, an overview. Understand how to represent programmes and interpret them by the use of algorithms, flowcharts, pseudocode as part of planning programming. Programming practise continued | | Algorithms (a) understand algorithms (written in pseudocode or flow diagram), explain what they do, and correct or complete them (b) produce algorithms in pseudocode or flow diagrams to solve problems. Control flow in imperative languages (g) understand and use sequence in an algorithm (h) understand and use selection in an algorithm (IF and CASE statements) (i) understand and use iteration in an algorithm (FOR, WHILE and REPEAT loops). | *Programming concepts KS3* |
| AUTUMN 2 | Software and programming practise using Python | Looking at different types of sofware, in particular Systems Software | | (a) explain the need for the following functions of an operating system: user interface, memory management, peripheral management, multi-tasking and security (b) describe the purpose and use of common utility programs for computer security (antivirus, spyware protection and firewalls), disk organisation (formatting, file transfer, and defragmentation), and system maintenance (system information and diagnosis, system cleanup tools, automatic updating) (c) discuss the relative merits of custom written, off the shelf, open source and proprietary software. | *Programming concepts KS3* |
| SPRING 1 | **ICT systems, Programming** | Introduction to ICT System, an overview. Intro to programming | | (a) define a computer system, (b) describe the importance of computer systems in the modern world (c) explain the need for reliability in computer systems (d) explain the need for adherence to suitable professional standards in the development, use and maintenance of computer systems (e) explain the importance of  ethical, environmental and legal considerations when creating computer systems. Programming - introduction to main concepts, with practical exercises | *Logo programming concepts* |

| SPRING 2 | Hardware. Programming practise | Inside the computer - hardware. Programming practise, developing skills and understanding | | (a) state the purpose of the CPU, (b) describe the function of the CPU as fetching and executing instructions stored in memory, (c) explain how common characteristics of CPUs such as clock speed, cache size and number of cores affect their performance.(d) explain why data is represented in computer systems in binary form. describe the difference between RAM and ROM (e) understand and produce simple logic diagrams using the operations NOT, AND and OR<br>(f) produce a truth table from a given logic diagram g) describe the difference between RAM and ROM (h) explain the need for ROM in a computer system<br>(i) describe the purpose of RAM in a computer system<br>(j) explain how the amount of RAM in a personal computer affects the performance of the computer<br>(k) explain the need for virtual memory<br>(l) describe cache memory<br>(m) describe flash memory<br>(n) discuss how changes in memory technologies are leading to innovative computer designs. (o) understand the need for input and output devices<br>(p) describe suitable input devices for a wide range of computer controlled situations<br>(q) describe suitable output devices for a wide range of computer controlled situations<br>(r) discuss input and output devices for users with specific needs. (s) explain the need for secondary storage<br>(t) describe common storage technologies such as optical, magnetic and solid state | *Programming concepts KS3* |
| SUMMER 1 | Representation of data. Revision of content so far. | Understanding how data is represented by binary. Manipulation of binary numbers including conversion. Re-cap of earlier content. | | Candidates should be able to:<br>(a) define the terms bit, nibble, byte, kilobyte, megabyte, gigabyte, terabyte<br>(b) understand that data needs to be converted into a binary format to be processed by a computer.<br>Number<br>Candidates should be able to:<br>(c) convert positive denary whole numbers (0-255) into 8-bit binary numbers and vice versa<br>Previous content revisited | Information sytems. Software. Hardware. Representation of data. |
| SUMMER 2 | | | | • TV, film and festivals.<br>• Reading and music. | Revision of Year 8 structures, plus consolidation of previous term. |