Richmond School & Sixth Form College
Being the best we can be

Year 10 Computer Science

The Year 10 curriculum has been devised to build on the programming skills and computing concepts which have been developed in Year 7, 8 and 9. The block and basic text programming is extended into Python text based programming.
Computer Science is engaging and practical, encouraging creativity and problem solving. It encourages students to develop their understanding and application of the core concepts in Computer Science. Students also analyse problems in computational terms and devise creative solutions by designing, writing, testing and evaluating programmes.

Methods of deepening and securing knowledge:	
Retrieval practice	Starter activities are used whilst students log on to computers, these are knowledge retrieval activities. Retrieval independent learning tasks are set.
Interleaving	Programming skills are revisited several times. Key concepts are repeatedly covered using different language and are interleaved within the curriculum.
Concrete examples	Concrete examples are used as the teacher demonstrates efficient coding practice.
Other	Dual coding is used as instructions for tasks include written steps and images showing what icons or tools look like.

	Autumn term 1	Autumn term 2	Spring term 1	Spring term 2	Summer term 1	Summer term 2
Topic(s)	**Binary and Hex number systems** - Binary and Hex - Binary addition - Images and sound storage - Data compression **Python Programming** - Variables - Logic statements - Selection	**Logic and Languages** - Logic diagrams and truth tables **Algorithms** - Computational thinking - Searching algorithms - Sorting algorithms **Python Programming** - Repetition - Random	**Algorithms** - Flow charts and pseudocode - Correct and complete algorithms **Computer Systems** - Architecture of the CPU - CPU performance - Embedded systems - Primary and secondary storage - RAM	**Ethics** - Ethical and cultural Issues - Computers in the modern world - Legislation and privacy **PPE Revision** - Data representation - Logic and languages - Algorithms - Computer architecture	**Logic and Languages** - Defensive design - Errors and testing - Translators and facilities - IDEs **Python Programming** - Preparation for programming challenges	**Python Programming** - Preparation for programming challenges

		- Turtle programming	**Python Programming** - SQL			
Assessment	Python baseline assessment	Data representation assessment	Algorithms assessment	Computer systems assessment - Y10 PPE	Impacts assessment	Python challenges

Independent Learning:
Independent learning is a core part of learning and serves to support the learning in class. Regular independent learning is set to coincide with the majority of theory lessons. Independent learning is mainly set through the online tool Google Classroom however some paper based independent learning tasks are set. Preparing for assessment is an essential part of each topic as each assessment allows teachers and students to see their progress. It is crucial that revision is completed so students can show what they know.