Computer Science: Curriculum for Sept 2021

HT 1	HT 2	HT 3	HT 4	HT 5	HT 6

Key Stage 3: Year 7 (Sept 2021/2022)

Term	Topic	Covered in lessons	Intent	NC Focus 1	NC Focus 2	Assessment
HT1	**Login and Setup E-Safety**	• Login (OneDrive/Email/G4S/TEAMS) • Desktop/Creating folders • ESafety	Equip students with the necessary skills to be safe active participants in a digital world.	Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns		Task Based: E-safety
HT2	**Digital Literacy and IT Skills BEBRAS Challenge**	• Lochness Monster (PPT skills) • Top Trumps (Word/Excel/Database) • BEBRAS Challenge	Students are taught how to be responsible, competent, confident and creative users of IT	Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users	Create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability	Task Based: E-safety
HT3	**Computational Thinking and Logic**	• Decomposition • Abstraction • Pattern Recognition • Algorithms • Logical Thinking • Logic gates	Embed Computational Thinking skills which forms the basis of computer science so that students can approach real world problems logically.	Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem	Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems	Project Based: Solving a computer science problem logically using the 4 stages of Computational Thinking

Computer Science: Curriculum for Sept 2021

HT 1	HT 2	HT 3	HT 4	HT 5	HT 6

Key Stage 3: Year 7 (Sept 2021/2022)

Term	Topic	Covered in lessons	Intent	NC Focus 1	NC Focus 2	Assessment
HT4	**Understanding Computers and Networks**	• Elements of a Computer • The CPU • Understanding Binary • Binary Addition • Storage Devices • Convergence and new technology OR Networks	Provide students with an understanding of how digital systems work, what they are made up of and the principle concepts of how computers work	Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal] Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems	Understand how instructions are stored and executed within a computer system Understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits	End of Topic test
HT5	**Block Based Programming**	• Sequencing, Algorithms and Design • Variables • Loops • Operators • Programming Techniques • Sound • Testing	Learn the fundamental concepts of programming using Block based programming	Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]	Use two 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	Project based
HT6	**Text based Programming**	• Strings and Variables • Data types and arithmetic • Selection • Writing algorithms • While loops • Searching	Build on the skills learnt in Block based programming to progress onto the learning the fundamental concepts of programming using Text based programming	Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem	Use two 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	Project and End of Topic test