Barr Beacon School
Curriculum Overview (2023 – 2024)

Computer Science and Digital Information Technology

Curriculum intent: The Computing Curriculum contributes to the whole school curriculum by providing students with the digital knowledge and understanding of digital infrastructure to thrive within their school life. Our curriculum provides a variety of experiences, such as STEM days and after school clubs, that interest and empower students to make informed contributions to our democratic society.

Curriculum rationale: Pupils will develop the necessary skills knowledge and understanding to prepare them for the technological demands of society throughout KS3. Pupils exposed to all three strands of the National Curriculum (Information Technology, Computer Science and Digital Literacy) to ensure that they are proficient users and practitioners while understanding the dangers and pitfalls of the technology. The computing curriculum will equip pupils with appropriate skills for all subjects and prepare them for the wider workplace. The whole of our KS3 curriculum builds knowledge that will be required both in later life and within our two KS4/5 pathways.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
7 Rotation	Using the computer system at school/File Management Keyboard skills/Mouse Skills Using Email Searching the Web E-Safety and being Online Presentation Software Hardware and Software Computational Thinking (Pattern Recognition and Abstraction) Computational Thinking (Decomposition and Algorithms) Algorithms Flowcharts Scratch Programming E Safety					

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8 Rotation	E-Safety and Understanding Online Trust Microsoft Word Skills Microsoft Excel Presentation Software Searching Algorithms Sorting Algorithms Binary Introduction Binary Representation (Text, Images and Sound) Logic Gates Edu blocks Programming					
9 Rotation	E-Safety and being Online Microsoft Excel Interface Design Computer Ethics Presentation Software Edublocks Programming Python Introduction Python Variables Python Inputs Python while Loops Python Project					
10CS	Python Programming Memory and storage, Units & numbers	Python Programming Memory and storage, Units & numbers	Designing Algorithms Systems Architecture	Designing Algorithms Systems Architecture	Programming fundamentals Networks	Programming fundamentals Networks
10IT	Component 1: Investigate user interface design for individuals and organisations	Component 1: Audience needs, and design principles	Component 1: Use project planning techniques to plan and design a user interface	Component 1: Develop and review a user interface	Component 2: investigate the role and impact of using data on individuals and organisations	Component 2: different ways of representing information situations where they are used

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11CS	Searching and Sorting Algorithms Network Security	Boolean logic Law and Ethics	Python Programming Robust programming	Python Programming Exam preparation & Revision Sessions	Python Programming Exam preparation & Revision Sessions	Python Programming Exam preparation & Revision Sessions
11IT	Component 2: Create a dashboard using data manipulation tools	Component 2: Draw conclusions and review data presentation methods	Component 3: Modern technologies	Component 3: Cyber security Component	Component 3: The wider implications of digital systems	Component 3: Planning and communication in digital systems
12CS	Input, output & storage, Structure & function of the processor, types of processors & operating systems Programming techniques	Data types, Boolean algebra, IDE & translators, compression encryption and application generation Computational thinking	Software development, networks, web technologies & databases Algorithms	Assembly language, laws & ethics Algorithms	Exam questions Programming Project (PyGame)	Exam questions Programming Project (PyGame)
12IT	Unit 2 – Creating a database Unit 1 - IT Systems Exam Content	Unit 2 – Creating a database Unit 1 - IT Systems Exam Content	Unit 2 – Creating a database Unit 1 - IT Systems Exam Content	Unit 2 – Creating a database Unit 1 - IT Systems Exam Content	Unit 2 Revision Unit 1 - IT Systems Exam Content	Unit 2 Revision U2 Exam Unit 1 - IT Systems U1 Exam
13CS	IDE, concurrent thinking, concurrent programming, stacks, hashing Processors, input output storage	Linked lists, trees, branching, graphs, sorting algorithms OS, software development, programming languages, data	Searching algorithms Databases, networks, web technologies,	Recursion, Dijkstra's algorithm, A* algorithm, computational methods Laws & ethics	Exam prep & extended questions	Exam prep & extended questions

		types & data structures				
13IT	Unit 3: social media	Unit 3: social media	Unit 3: social media U1 / U2 Exam retakes	Unit 3: social media Unit 6: Web development	Unit 6 Web development	Unit 6 Web development