

Department Name: Computing

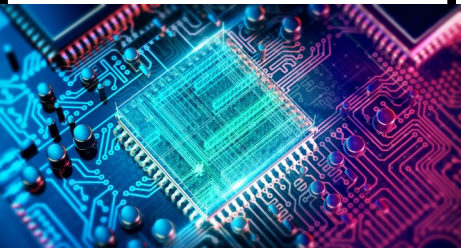
Department's vision: The computing curriculum is designed to help develop students' knowledge, skills and understanding of computational concepts. Students will learn how different parts of a computer work together before proceeding to programming systems. Students will be able to demonstrate how the use of technology and computer programs can analytically solve problems. Students will be responsible, competent, confident and creative users of information and communication technology.

Year Group	Topic One	Topic Two	Topic Three	Topic Four	Topic Five	Topic Six
Year 7	Introduction to computers	E-Safety	Number systems	Algorithms	Block based programming	3D game development
What will students know by the end of the topic...	Know how computers work, what inputs are, what outputs are, the history of computers	How to stay safe on line, what dangers there are, what viruses are how to protect yourself and your computer.	Binary. Denary, units of data, storage media, binary conversion	Understanding flow charts, knowing basic flowchart shapes, setting up loops, setting up decisions, writing pseudo code.	Programming with blocks, variables, loops, flow charts, how to plan, scripts	Character control, adding characters, setting parameters, setting up time limits and score systems
Year 8	Computational thinking	Programming in Python	Graphical design	Web design	Number systems and ethical, legal and moral	Microbit
What will students know by the end of the topic...	Decomposition, abstraction, Algorithm, flow chart design, pattern recognition, Iteration	Data types, casting, iteration, syntax error, logic error, python, bubble sort, insert sorts, pseudo code.	Using Photoshop, layers, research methods, image resizing, Audience, planning	How to plan a website, e-safety topics, hyper links, page navigation, master page creation	Binary, denary, hexadecimal, converting between all, what is ethical when using computers, laws and legislation, morality when using computers	Text based programming , Loops, microbit layout, accelerometer, motion control, planning, game creation.
Year 9 Computer Science	Memory and Storage Programming Basics (using Block	Systems Architecture Programming Basics (Block to text)	Computer Networks Programming Basics (Python)	Network Security Programming Basics (Python)	Systems Software Algorithms	Ethical, Legal, culture and Environmental concerns
What will students know by the end of the topic...	Primary + Secondary storage, units of storage , data storage, compression	Architecture of the CPU, CPU performance and Embedded systems	Networks and topologies, Wired and wireless networks, protocols and layers	Threats to computer systems and networks, Identifying and preventing vulnerabilities	Operating systems and Utility software Computational thinking, Designing, creating and refining algorithms, Searching and sorting algorithms	Ethical, legal, cultural and environmental impact
Year 10 Computer Science	Programming fundamentals (Python)	Producing robust programs	Practical Programming	Practical Programming	Boolean logic	Programming languages and IDEs
What will students know by the end of the topic...	Programming fundamentals , Data types, Additional programming techniques	Defensive design and Testing	Develop skills within the following areas when programming: • Design • Write • Test • Refine	Develop skills within the following areas when programming: • Design • Write • Test • Refine	Logic diagrams using the operators AND, OR and NOT + truth tables to solve problems	Languages, The Integrated Development Environment (IDE)
Year 11 Computer Science	Practical Programming Exam Technique Paper 1	Practical Programming Exam Technique Paper 2	Exam Technique + knowledge			
What will students know by the end of the topic...	Components of a computer system, data representation, Networks and	Algorithms, Programming, Design, Testing and IDEs	Command words, Guidance for the actual exam, OCR Exam paper tips and how to tackle those extended 9+ mark questions			
Year 12 A-Level Computer Science	Structure and function of the processor Types of processor Input, output and storage Thinking abstractly and ahead	Operating systems/systems software Application generation Thinking procedurally and logically	Types of programming language Thinking concurrently	Introduction to programming Compression, encryption and hashing Programming techniques	Unit 3 Programming Project Analysis Databases Computational methods	Unit 3 Programming Project Design Networks Algorithms
Year 13 A-Level Computer Science	Web Technologies Unit 3 Programming Project Development	Data types and structures Boolean algebra Unit 3 Programming Project Development	Legislation + Ethical, moral & cultural issues Unit 3 Programming Project Evaluation	Exam Technique Unit 3 Programming Project Evaluation		

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Year 9 iMedia	Unit R093: Creative iMedia in the media industry Topic Area 1: The media industry	Unit R093: Creative iMedia in the media industry - Factors influencing product design	Unit R093: Creative iMedia in the media industry - Factors influencing product design	R094: Visual identity and digital graphics (teaching content)		
What will students know by the end of the topic...	Media industry sectors and products Job roles in the media industry	How style, content and layout are linked to the purpose Client requirements and how they are defined	Audience demographics and segmentation Research methods, sources and types of data Media codes used to convey meaning, create impact and/or engage audiences	Will be able to develop a visual identity Will be able to to plan digital graphics for products Will be able to Create visual identity and digital graphics		
Year 10 iMedia	Unit R093: Creative iMedia in the media industry Topic Area 3: Pre-production planning	Unit R093: Creative iMedia in the media industry - Topic Area 4: Distribution con-	R094: Visual identity and digital graphics NEA			
What will students know by the end of the topic...	Work planning, Documents used to support ideas generation , Documents used to design and plan media products and The legal issues that affect media	Distribution platforms and media to reach audiences, Properties and formats of media files	Will be able to develop a visual identity Will be able to to plan digital graphics for products Will be able to Create visual identity and digital graphics			
Year 11 iMedia	R097 Interactive digital media	R097 Interactive digital media NEA	Unit R093: Creative iMedia in the media industry			
What will students know by the end of the topic...	Plan, Create and review interactive digital media	Apply knowledge to scenario i.e. plan, create and test/review interactive product.	Exam technique and how to answer exam questions			
Key Stage Four Specification Links: OCR GCSE Computer Science New Spec & Creative iMedia			Key Stage Five Specification Link: OCR A-Level Computer Science & Cambridge Technicals in IT			

What will students see in their books or folders? <ul style="list-style-type: none"> Detailed notes some provided by the school and some taken by the students Example exam questions and answers Modelling and scaffolding to support students Low stakes quizzing to test knowledge in back of books/folders Self, peer and teacher assessments 	This subject supports students' reading and literacy through... <ul style="list-style-type: none"> Key terms highlighted Scaffolding to support students Use of auto correct and <i>spell</i> checker The ability to read and write code Pair programming Discussions of a code snippet or a text about code Creating a working dictionary of important vocabulary, jargon, and acronyms with their definitions and usage. 	This subject supports students' numeracy through... <p>Data and analysis, Estimation, rounding, Measurement, Number, number processes and Percentages</p> <p><u>Calculations</u></p> <ul style="list-style-type: none"> Conversions such as binary to denary Calculating the storage requirements of media files in the appropriate units. Use relevant technical terminology and units of measurement Be able to identify how computer graphics are created; type of shape, start/end points, radius etc. Be able to use different types of mathematical (*, /, +, -) and logical (AND, OR, NOT) operators as well as calculate percentages 	This subject promotes the following revision strategies as the most effective means of retaining content... <ul style="list-style-type: none"> Use look cover write check, to learn key vocab. Complete practice exam papers + use mark schemes to check answer Create mind maps, revision cards and other visual resources to help retain content. Use the All Saints Absolutes as a guide to the knowledge to retain. 	Opportunities for exploring this subject further are available through <p>https://student.craigndave.org/</p> <p>https://www.codecademy.com</p> <p>https://replit.com</p> <p>www.csnewbs.com</p> <p>Code Club</p> <p>https://www.codeclub.org</p> <p>BBC Bitesize OCR GCSE Computer Science</p> <p>https://www.bbc.co.uk/bitesize/examspecs/zmtchbk</p>	The following trips run through this subject... <ul style="list-style-type: none"> Cyber Security workshops Notts Trent University workshops Inspire workshop Mansfield library National videogame Museum 
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