Wanstead High School

Education with Character

Computer Science
Curriculum Content 2024 - 25

Key Stage 3 - Year 7, 8 & 9
Key Stage 4 - Year 10 & 11
Key Stage 5 - Year 12 & 13

Contents

Computing Science Year 7

Pupils receive 2 lessons of Computing each fortnight.

Computing is important in Year 7 and beyond because it equips pupils with essential skills and knowledge for the digital age, prepares them for future career opportunities and promotes critical thinking and creativity. It is a subject that empowers pupils to thrive in our technology driven society.

Computing inspires pupils to develop Education with Character in several ways. It often involves problem solving and debugging which can be challenging. Facing and overcoming these challenges can cultivate resilience and perseverance in pupils. The subject offers opportunities for creative expression through coding, game design and web development. Encouraging creativity helps pupils develop an innovative and imaginative character. Learning about online safety promotes responsible online behaviour and a character founded on respect, empathy and kindness in the digital world.

Skills developed in Computing are: coding, algorithmic thinking, computational thinking, digital literacy, internet safety, problem solving, creativity, critical thinking, collaboration.

What is taught	When is it taught (Terms or Half Terms)	Reading list and Literacy focus	Where the curriculum is ambitious
Using computers safely, effectively and responsibly	**Autumn term 1**	**https://www.nspcc.org.uk/keeping-children-safe/online-safety/talking-child-online-safety/** **https://www.childnet.com/** **https://www.thinkuknow.co.uk/** Wider reading resources and keywords will be posted on Google Classroom to fit with the delivery of each unit.	The unit is considered a responsible and essential component of digital literacy. It's crucial we equip pupils with the knowledge and skills to navigate the online world safely. Pupils will explore: • Real-life scenarios • Age-appropriate content • Ethical considerations • Critical evaluation • Online tools • Collaboration • Open dialogue
Computer Systems	**Autumn term 2**	**https://www.bbc.co.uk/bitesize/topics/zmpsgk7** **https://www.youtube.com/watch?v=Nsk1gS0jJ2I** Wider reading resources and keywords will be posted on Google Classroom to fit with the delivery of each unit.	Pupils will be able to apply their knowledge by working in projects that involve both hardware and software components. For example, building a robot that requires programming and hardware integration. Understanding the synergy between hardware and software can inspire entrepreneurial thinking. Pupils may identify opportunities to create tech-based start-ups or innovate within existing industries.
Introduction to Python	**Spring term 1**	**https://www.python.org/about/gettingstarted/** **https://www.w3schools.com/python/** **https://www.dataquest.io/blog/learn-python-the-right-way/**	Python is a highly relevant and in-demand programming language in various industries, including web development, data science, artificial intelligence, and scientific research. Teaching Python early provides pupils with a valuable skill set that aligns with current and future job opportunities. Python is known for its clear and readable syntax, making it an excellent

			choice for teaching coding to beginners. This early exposure helps pupils become coding literate and comfortable with programming concepts.
HTML and Website development	Spring term 2 – Summer term 1	https://codedragon.org/	Equips pupils with essential digital skills, fosters creativity and problem-solving abilities, and provides a strong foundation for future learning in the field of web development and computer science. It also helps pupils understand the broader implications of technology in society and encourages them to become responsible digital citizens.
Flowol	Summer term 2	https://www.bbc.co.uk/bitesize/guides/z3bq7ty/revision/3	Understanding flow charts lays the groundwork for learning programming languages. Many programming languages like Python or JavaScript, rely on algorithmic thinking and pupils who are familiar with flowcharts will have an easier time transitioning to coding in later Years.

How are pupils informally and formally assessed?	Each unit is assessed by a 30-minute written exam consisting of multiple choice, short answer and extended writing questions.
Developing Independent and Home Learning Skills	All lesson materials are posted onto Google Classroom before each lesson. Pupils will test their knowledge and understanding and will be provided with immediate feedback via self or teacher feedback. Pupils are encouraged to tackle problem solving exercises independently before seeking assistance. Homework is set and marked on Google Classroom.
Useful e-Learning Resources (e.g., web links)	https://www.bbc.co.uk/bitesize/subjects/zvc9q6f https://code.org/

Equipment for lessons	Black pen, green pen, pencil, rubber, ruler, highlighter, calculator, glue stick.
Enrichment activities	Robotics club
Careers curriculum	Relevant links made throughout the curriculum relevant to topics being learned. Career choices could include software developer, data scientist, Cyber security analyst, AI ethics consultant IT project manager and Game developer

Head of Department and email contact	Mr B Alom b.alom@wansteadhigh.co.uk

Computing Science Year 8

Pupils receive 2 lessons of Computing each fortnight.

Computing is important in Year 8 and beyond because it equips pupils with essential skills and knowledge for the digital age, prepares them for future career opportunities and promotes critical thinking and creativity. It is a subject that empowers pupils to thrive in our technology driven society.

Computing inspires pupils to develop Education with Character in several ways. It often involves problem solving and debugging which can be challenging. Facing and overcoming these challenges can cultivate resilience and perseverance in pupils. The subject offers opportunities for creative expression through coding, game design and web development. Encouraging creativity helps pupils develop an innovative and imaginative character. Learning about online safety promotes responsible online behaviour and a character founded on respect, empathy and kindness in the digital world.

Skills developed in Computing are: coding, algorithmic thinking, computational thinking, digital literacy, internet safety, problem solving, creativity, critical thinking, collaboration.

What is taught	When is it taught (Terms or Half Terms)	Reading list and Literacy focus	Where the curriculum is ambitious
Introduction to Cyber Security	**Autumn term 1**	https://www.gov.uk/data-protection	We integrate this topic with other subjects such as mathematics (for cryptography), social studies (for understanding the societal impact of cyber threats), and ethics.
Python Next Steps	**Autumn term 1 Spring term 1**	https://www.python.org/about/gettingstarted/ https://www.w3schools.com/python/ https://www.dataquest.io/blog/learn-python-the-right-way/	**We move from teaching basic syntax and introductory concepts to cover advanced topics such as object-oriented programming, data structures (lists, dictionaries, sets), algorithms, and modules.**
Spreadsheets	**Spring term 2**	https://www.w3schools.com/EXCEL/index.php https://www.bbc.co.uk/bitesize/guides/zdydmp3/revision/1	Spreadsheets are widely used in business, finance, science, and many other fields. Teaching spreadsheets early provides pupils with skills directly applicable to real-world scenarios, including budgeting, data analysis, and project management.
Binary conversion	**Summer term 1 Summer term 2**	https://www.bbc.co.uk/bitesize/topics/zgv8dp3/articles/z9j2jsg	Pupils will explore binary, denary, and hexadecimal number systems. pupils learn how to convert between these systems, understand their significance in computing, and apply this knowledge to various practical scenarios, such as coding and digital electronics. By mastering these fundamental concepts, pupils gain a strong foundation in how computers process and represent data, preparing them for more advanced topics in computer science.

How are pupils informally and formally assessed?	Each unit is assessed by a 30-minute written exam consisting of multiple choice, short answer and extended writing questions.

Developing Independent and Home Learning Skills	All lesson materials are posted onto Google Classroom before each lesson. Pupils will test their knowledge and understanding and will be provided with immediate feedback via self or teacher feedback. Pupils are encouraged to tackle problem solving exercises independently before seeking assistance. Homework is set and marked on Google Classroom.
Useful e-Learning Resources (e.g., web links)	**https://www.bbc.co.uk/bitesize/subjects/zvc9q6f** **https://code.org/**
Equipment for lessons	Black pen, green pen, pencil, rubber, ruler, highlighter, calculator, glue stick.
Enrichment activities	Robotics club.
Careers curriculum	Relevant links made throughout the curriculum relevant to topics being learned. Career choices could include software developer, data scientist, Cyber security analyst, AI ethics consultant IT project manager and Game developer
Head of Department and email contact	Mr. B Alom b.alom@wansteadhigh.co.uk

Computing Science Year 9

Pupils receive 2 lessons of Computing each fortnight.

Computing is important in Year 9 and beyond because it equips pupils with essential skills and knowledge for the digital age, prepares them for future career opportunities and promotes critical thinking and creativity. It is a subject that empowers pupils to thrive in our technology driven society.

Computing inspires pupils to develop Education with Character in several ways. It often involves problem solving and debugging which can be challenging. Facing and overcoming these challenges can cultivate resilience and perseverance in pupils. The subject offers opportunities for creative expression through coding, game design and web development. Encouraging creativity helps pupils develop an innovative and imaginative character. Learning about online safety promotes responsible online behaviour and a character founded on respect, empathy and kindness in the digital world.

Skills developed in Computing are: coding, algorithmic thinking, computational thinking, digital literacy, internet safety, problem solving, creativity, critical thinking, collaboration.

What is taught	When is it taught (Terms or Half Terms)	Reading list and Literacy focus	Where the curriculum is ambitious
Ethical, legal and cultural concerns	**Autumn term 1**	https://www.bbc.co.uk/bitesize/guides/zhx26yc/revision/3 Wider reading resources and keywords will be posted on Google Classroom to fit with the delivery of each unit.	Exploring cultural and ethical issues allows pupils to recognize the social impact of technology, both positive and negative. This encourages them to become more socially conscious and proactive in addressing societal challenges.
Practical programming in Python	**Autumn term 2**	https://www.python.org/about/gettingstarted/ https://www.w3schools.com/python/ https://www.dataquest.io/blog/learn-python-the-right-way/	Advanced programming in Python often involves tackling complex problems and projects. Pupils are challenged to apply their knowledge and creativity to design solutions, fostering problem-solving skills.
Databases	**Spring term 1**	https://www.bbc.co.uk/bitesize/guides/zswnb9q/revision/1	Teaching databases can be a stepping stone to discussing big data and data analytics. Pupils can explore how large datasets are stored, processed, and analysed to extract valuable insights.
Data Representation	**Summer term 1**	https://www.bbc.co.uk/bitesize/topics/zxnfr82 https://classroom.thenational.academy/units/data-representation-618b	Pupils learn about how data representation impacts graphics, images, audio, and video. This allows them to explore multimedia data formats and compression methods, which are vital in fields like game development and media production.

How are pupils informally and formally assessed?	Each unit is assessed by a 30-minute written exam consisting of multiple choice, short answer and extended writing questions.
Developing Independent and Home Learning Skills	All lesson materials are posted onto Google Classroom before each lesson. Pupils will test their knowledge and understanding and will be provided with immediate feedback via self or teacher feedback. Pupils are encouraged to tackle problem solving exercises independently before seeking assistance. Homework is set and marked on Google Classroom.

Useful e-Learning Resources (e.g., web links)	**https://www.bbc.co.uk/bitesize/subjects/zvc9q6f** **https://code.org/** **https://classroom.thenational.academy/units/data-representation-618b**
Equipment for lessons	Black pen, green pen, pencil, rubber, ruler, highlighter, calculator, glue stick.
Enrichment activities	Robotics club
Careers curriculum	Relevant links made throughout the curriculum relevant to topics being learned. Career choices could include software developer, data scientist, Cyber security analyst, AI ethics consultant IT project manager and Game developer
Head of Department and email contact	Mr. B Alom b.alom@wansteadhigh.co.uk

GCSE Computer Science - Year 10 and 11

Pupils receive six lessons of Computer Science each fortnight.

GCSE Computer Science is important for pupils as it equips pupils with essential skills and knowledge for the digital age, prepares them for future career opportunities and promotes critical thinking and creativity. It is a subject that empowers pupils to thrive in our technology driven society.

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Skills developed in Computing are: coding, algorithmic thinking, computational thinking, digital literacy, internet safety, problem solving, creativity, critical thinking, collaboration.

What is taught	When is it taught (Terms or Half Terms)	Reading list and Literacy focus	Where the curriculum is ambitious
1.1 Systems architecture 2.1 Algorithms	Autumn Term 1 (Year 10)	GCSE Computer Science for OCR pupil book (David Waller) GCSE Computer Science OCR Complete Revision & Practice (CGP) **https://www.bbc.co.uk/bitesize/examspecs/zmtchbk** Wider reading resources and keywords will be posted on Google Classroom to fit with the delivery of each unit.	System architecture delves into the inner workings of computers, teaching them about the CPU, memory, storage, and input/output devices. Teaching these foundational concepts early fosters a comprehensive understanding of computer systems, preparing pupils to troubleshoot technical issues effectively. Similarly, algorithms challenge pupils to engage in critical and logical thinking by constructing step-by-step procedures for problem-solving. This process improves pupil analytical skills.
1.2 Memory and Storage 2.1 Algorithms	Autumn Term 2 (Year 10)	GCSE Computer Science for OCR pupil book (David Waller) GCSE Computer Science OCR Complete Revision & Practice (CGP) **https://www.bbc.co.uk/bitesize/examspecs/zmtchbk** Wider reading resources and keywords will be posted on Google Classroom to fit with the delivery of each unit.	Memory and storage concepts have direct relevance to pupil's everyday experiences, as they interact with a multitude of devices such as smartphones, laptops, and tablets. Proficiency in comprehending the processes of data storage and retrieval holds immense significance in our contemporary, technology-driven society. Furthermore, conversations centred on memory and storage can encompass ethical dimensions, including concerns related to data privacy, data security, and the responsible management of data. These ethical considerations are progressively paramount in the digital era.
1.3 Computer networks, connections and protocols 2.1 Programming Fundamentals	Spring Term 1 (Year 10)	GCSE Computer Science for OCR pupil book (David Waller) GCSE Computer Science OCR Complete Revision & Practice (CGP) **https://www.bbc.co.uk/bitesize/examspecs/zmtchbk**	Knowledge of computer networks empowers pupils to become informed and responsible users of technology, guiding decisions on network security, online behaviour, and data management. This unit creates global awareness and digital citizenship,

		Wider reading resources and keywords will be posted on Google Classroom to fit with the delivery of each unit.	revealing how information flows globally. Programming empowers pupils to create software, games, and applications. It nurtures creativity and innovation as pupils design and build projects, encouraging them to explore their unique ideas.
1.4 Network security **2.1 Programming Fundamentals**	**Spring Term 2 (Year 10)**	GCSE Computer Science for OCR pupil book (David Waller) GCSE Computer Science OCR Complete Revision & Practice (CGP) **https://www.bbc.co.uk/bitesize/examspecs/zmtchbk** Wider reading resources and keywords will be posted on Google Classroom to fit with the delivery of each unit.	Pupils will develop the knowledge to protect themselves and their digital assets from cyber threats such as viruses, malware, phishing attacks, and data breaches. Network security challenges pupils to think critically and solve complex problems related to cybersecurity. They learn to analyse security vulnerabilities and develop countermeasures.
1.5 Systems software **2.1 Programming Fundamentals**	**Summer Term 1 & 2 (Year 10)**	GCSE Computer Science for OCR pupil book (David Waller) GCSE Computer Science OCR Complete Revision & Practice (CGP) **https://www.bbc.co.uk/bitesize/examspecs/zmtchbk** Wider reading resources and keywords will be posted on Google Classroom to fit with the delivery of each unit.	The topic will equip pupils with essential knowledge about the software that powers computers and devices, enabling them to navigate and use technology effectively. Pupils gain insights into how software interacts with hardware, operating systems, and applications, providing a holistic view of computing.
1.6 Ethical, legal, cultural and environmental impacts of digital technology **2.3 Producing robust programs**	**Autumn Term 1 (Year 11)**	GCSE Computer Science for OCR pupil book (David Waller) GCSE Computer Science OCR Complete Revision & Practice (CGP) **https://www.bbc.co.uk/bitesize/examspecs/zmtchbk** Wider reading resources and keywords will be posted on Google Classroom to fit with the delivery of each unit.	Pupils will learn to analyse complex issues, consider different perspectives, and make informed decisions. They will understand the potential consequences of their actions in the digital world, including legal and societal impacts. Additionally, pupils will grasp the importance of precise coding practices, which are vital in programming. This emphasis on precision sets a high standard for code reliability and efficiency. They will learn to anticipate potential issues and develop solutions, fostering essential problem-solving skills.
2.4 Boolean Logic	**Autumn Term 2 (Year 11)**	GCSE Computer Science for OCR pupil book (David Waller) GCSE Computer Science OCR Complete Revision & Practice (CGP) **https://www.bbc.co.uk/bitesize/examspecs/zmtchbk** Wider reading resources and keywords will be posted on Google Classroom to fit with the delivery of each unit.	Boolean logic forms the basis of digital electronics and computer systems. Teaching it provides pupils with the understanding of how computers process and manipulate information at the most fundamental level. It encourages pupils to approach problems systematically and design algorithmic solutions.

2.5 Programming languages and Integrated Development Environments	Spring Term 1 (Year 11)	GCSE Computer Science for OCR pupil book (David Waller) GCSE Computer Science OCR Complete Revision & Practice (CGP) https://www.bbc.co.uk/bitesize/examspecs/zmtchbk Wider reading resources and keywords will be posted on Google Classroom to fit with the delivery of each unit.	Pupils become more versatile in their approach to coding and can easily switch between different programming languages as needed.

How are pupils informally and formally assessed?	This qualification comprises two exam papers, each lasting 90 minutes. Throughout the course, pupils will encounter past exam questions at the conclusion of each unit. These assessments are conducted under exam conditions. In the Summer Term of Year 10, pupils will undertake a comprehensive Paper 1 exam. Past exam questions are seamlessly integrated into the course units, and pupils receive both verbal and written feedback. Each unit culminates in an end-of-topic assessment, where pupils are provided with grades and detailed feedback tailored to their targets and exam assessment criteria.
Developing Independent and Home Learning Skills	Projects will be assigned that require pupils to research, design, and implement solutions independently. These open-ended tasks encourage self-directed learning and problem-solving. Pupils will be provided coding challenges that require them to solve problems using programming. Websites like w3schools, HackerRank, and Codeforces offer a wide range of challenges for various skill levels.
Useful e-Learning Resources (e.g., web links)	**The course specification can be found at:** https://www.ocr.org.uk/Images/558027-specification-gcse-computer-science-j277.pdf **BBC bitesize:** https://www.bbc.co.uk/bitesize/examspecs/zmtchbk https://code.org/

Equipment for lessons	Black pen, green pen, pencil, rubber, ruler, highlighter, calculator, glue stick.
Enrichment activities	Coding club
Careers curriculum	Relevant links made throughout the curriculum relevant to topics being learned. Career choices could include software developer, data scientist, Cyber security analyst, AI ethics consultant IT project manager and Game developer

Head of Department and email contact	Mr B Alom b.alom@wansteadhigh.co.uk

A Level Computing Science Year 12 and 13

SUBJECT: Computer Science	**HEAD OF DEPARTMENT:** Mr B. Alom
QUALIFICATION: A-Level	**LENGTH:** 2 years
EXAM BOARD: OCR	**SPECIFICATION NO.** H446

ENTRY REQUIREMENTS:
Grade 6 in Computer Science and 6 in Maths.

Pupils receive 9 or 10 lessons of Computer Science each fortnight.

A Level Computer Science is important for pupils as it provides a strong foundation for further studies in computer science and related fields at the university level. It opens up diverse career opportunities in technology-driven industries such as software development, cybersecurity, data science, artificial intelligence, and more. Additionally, it equips pupils with essential knowledge about the digital infrastructure that underpins modern society, including networks, databases, and cybersecurity.

Computing inspires pupils to develop Education with Character in several ways. It often involves problem solving and debugging which can be challenging. Facing and overcoming these challenges can cultivate resilience and perseverance in pupils. The subject offers opportunities for creative expression through coding, game design and web development. Encouraging creativity helps pupils develop an innovative and imaginative character. Learning about online safety promotes responsible online behaviour and a character founded on respect, empathy and kindness in the digital world.

Skills developed in Computing are: coding, algorithmic thinking, computational thinking, digital literacy, internet safety, problem solving, creativity, critical thinking, collaboration.

What is taught	When is it taught (Terms or Half Terms)	Reading list and Literacy focus	Where the curriculum is ambitious
Fundamentals of programming

Fundamentals of data representation

Fundamentals of computer systems | **Autumn Term (Year 12)** | AQA A Level Computer Science – Bob Reeves

A Level Computer Science for AQA Unit 1 – Kevin Bond

A Level Computer Science for AQA Unit 2 – Kevin Bond

Craig and Dave YouTube videos - **https://www.youtube.com/@craigndave/playlists?view=50&sort=dd&shelf_id=7**

Isaac Computer Science - **https://isaaccomputerscience.org/topics/a_level?examBoard=all&stage=all#all**

Physics and Math's tutor - **https://www.physicsandmathstutor.com/computer-science-revision/**

Wider reading resources and keywords will be posted on Google Classroom to fit with the delivery of each unit. | Programming is a fundamental skill in computer science, teaching pupils how to write code, solve problems algorithmically, and develop software applications, thereby providing a strong practical and theoretical foundation for more advanced studies.

Knowledge of data representation further enhances their ability to write efficient programs and optimise storage and processing power, which are crucial skills in both academic and professional settings.

Additionally, pupils gain insights into the internal workings of computer systems, including the CPU, memory, input/output devices, and the interaction between hardware and software, all of which are essential for any computer science professional. |

Fundamentals of data structures Fundamentals of algorithm Fundamentals of computer organization and architecture **Consequences of computing**	**Spring Term (Year 12)**	AQA A Level Computer Science – Bob Reeves A Level Computer Science for AQA Unit 1 – Kevin Bond A Level Computer Science for AQA Unit 2 – Kevin Bond Craig and Dave YouTube videos - **https://www.youtube.com/@craigndave/playlists?view=50&sort=dd&shelf_id=7** Isaac Computer Science - **https://isaaccomputerscience.org/topics/a_level?examBoard=all&stage=all#all** Physics and Math's tutor - **https://www.physicsandmathstutor.com/computer-science-revision/** Wider reading resources and keywords will be posted on Google Classroom to fit with the delivery of each unit.	Proficiency in data structures such as arrays, linked lists, stacks, queues, trees, and graphs empowers pupils with the sophisticated tools necessary to tackle and solve complex computational challenges. Studying algorithms develops the ability to design intricate, step-by-step solutions to problems, embodying the core principles of advanced computational thinking. **The study of Computer Organization and Architecture delves into the intricate organisation and operation of computer systems, offering a profound understanding of the roles and interactions of the CPU, memory hierarchy, and input/output mechanisms**
Fundamentals of computational thinking **Non exam assessment (NEA)**	**Summer Term (Year 12)**	AQA A Level Computer Science – Bob Reeves A Level Computer Science for AQA Unit 1 – Kevin Bond A Level Computer Science for AQA Unit 2 – Kevin Bond Craig and Dave YouTube videos - **https://www.youtube.com/@craigndave/playlists?view=50&sort=dd&shelf_id=7** Isaac Computer Science - **https://isaaccomputerscience.org/topics/a_level?examBoard=all&stage=all#all** Physics and Math's tutor - **https://www.physicsandmathstutor.com/computer-science-revision/** Wider reading resources and keywords will be posted on Google Classroom to fit with the delivery of each unit.	Pupils learn to tackle complex and abstract problems, developing innovative and efficient solutions. This capability is essential for addressing real-world challenges and advancing technology. The A Level non-exam assessment (NEA) constitutes 20% of the total A Level grade and requires pupils to work on a project either to identify a real problem that can be solved with a computer-based solution or to investigate a specific aspect of computer science. Pupils are required to work through all of the stages of system development to produce a programmed solution. This is a major piece of work that should take at least 50 hours, with the majority of the marks available for the technical solution.
Fundamentals of communication and networking Pre-Release material – Skeleton code Non exam assessment (NEA)	**Autumn Term (Year 13)**	AQA A Level Computer Science – Bob Reeves A Level Computer Science for AQA Unit 1 – Kevin Bond A Level Computer Science for AQA Unit 2 – Kevin Bond Craig and Dave YouTube videos - **https://www.youtube.com/@craigndave/playlists?view=50&sort=dd&shelf_id=7** Isaac Computer Science - **https://isaaccomputerscience.org/topics/a_level?examBoard=all&stage=all#all** Physics and Math's tutor - **https://www.physicsandmathstutor.com/computer-science-revision/**	Learning this topic will ensure that the curriculum integrates practical skills with theoretical knowledge, preparing pupils for hands-on applications in various professional settings. The topic will equip pupils with skills in configuring networks, troubleshooting connectivity issues, and understanding security considerations, which are crucial in modern IT environments.

		Wider reading resources and keywords will be posted on Google Classroom to fit with the delivery of each unit.	
Fundamentals of database Big Data Functional programming Pre-Release material – Skeleton code Non exam assessment (NEA)	**Spring Term (Year 13)**	AQA A Level Computer Science – Bob Reeves A Level Computer Science for AQA Unit 1 – Kevin Bond A Level Computer Science for AQA Unit 2 – Kevin Bond Craig and Dave YouTube videos - **https://www.youtube.com/@craigndave/playlists?view=50&sort=dd&shelf_id=7** Isaac Computer Science - **https://isaaccomputerscience.org/topics/a_level?examBoard=all&stage=all#all** Physics and Math's tutor - **https://www.physicsandmathstutor.com/computer-science-revision/** Wider reading resources and keywords will be posted on Google Classroom to fit with the delivery of each unit.	Studying database fundamentals, Big Data, and functional programming ensures that the curriculum reflects current trends and prepares pupils for emerging challenges in the digital era. The emphasis on practical skills in managing databases, analysing Big Data, and programming functionally ensures that pupils develop expertise directly applicable in real-world scenarios.

How are pupils informally and formally assessed?	The course is assessed through a combination of two exam papers [80%] and a Non-Examined Assessment [20%] Paper 1 (40%): an onscreen examination that tests a pupil's ability to program, as well as their theoretical knowledge of computer science from the following topics: • Fundamentals of programming • Fundamentals of data structures • Fundamentals of algorithms • Theory of computation Paper 2 (40%): this paper tests a pupil's ability to answer questions from the following topics: • Fundamentals of data representation • Fundamentals of computer systems • Fundamentals of computer organisation and architecture • Consequences of computing • Fundamentals of communications and networking • Fundamentals of databases • Big Data • Fundamentals of functional programming Non-Examined Assessment (NEA) (20%): the non-exam assessment assesses a pupil's ability to use the knowledge and skills gained through the course to solve or investigate a practical problem. Pupils will be expected to follow a systematic approach to problem solving. Throughout the course, pupils will encounter past exam questions at the conclusion of each unit. These assessments, including Challenge Weeks are conducted under exam conditions. In the Summer Term of Year 12, pupils will undertake a comprehensive Paper 1 exam. Past exam questions are seamlessly integrated into the course units,

	and pupils receive both verbal and written feedback. Each unit culminates in an end-of-topic assessment, where pupils are provided with grades and detailed feedback tailored to their targets and exam assessment criteria.
Developing Independent and Home Learning Skills	Homework will be assigned that requires pupils to research, design, and implement solutions independently. These open-ended tasks encourage self-directed learning and problem-solving. Pupils will be provided coding challenges that require them to solve problems using programming. Websites like w3schools, HackerRank, and Codeforces offer a wide range of challenges for various skill levels.
Useful e-Learning Resources (e.g., web links)	**The course specification can be found at:** https://filestore.aqa.org.uk/resources/computing/specifications/AQA7516-7517-SP-2015.PDF
Equipment for lessons	Black pen, green pen, pencil, rubber, ruler, highlighter, calculator, glue stick.
Careers curriculum	**Relevant links made throughout the curriculum relevant to topics being learned. Career choices could include software developer, data scientist, Cyber security analyst, AI ethics consultant IT project manager and Game developer**
Head of Department and email contact	Mr B Alom b.alom@wansteadhigh.co.uk