



Curriculum Overarching Intent

Students will learn about the ever-changing world of ICT and digital devices. This will focus on IT fundamentals and the development of software skills and tools

Prior Learning

- Basic IT concepts and fundamentals
- Microsoft Office
- Digital devices and platforms

	Vision	Key Concepts and Key Skills
Year 7	Students will learn how to use computers and safely and effectively. They will build upon previous knowledge of e-safety from Key Stage 2 e.g. how to use email and websites securely. They will also use graphical programming language to help students learn to write code and engage in creative thinking using Scratch	<ul style="list-style-type: none"> • Using email • Web security • Creating sprites and scripts • Making Variables
Year 8	Students will learn how use word processing skills and features effectively using Microsoft Word. They will Explore the use of copyright and target audience to design a game. Students will also be introduced into text-based programming with Python.	<ul style="list-style-type: none"> • Word processing styles, formatting and inserting elements • Game planning and user interfaces • Python programming concepts
Year 9	Students will learn about the different elements of a computer, including binary conversions. They will develop spreadsheet modelling skills that can help in further education and the real world. They will learn about algorithms and ciphers and the use of decomposition and abstraction	<ul style="list-style-type: none"> • Computer hardware • Number conversions • Networking • Spreadsheet formatting and formulae • Abstraction and decomposition • Binary addition
Year 10	<u>BTEC Technical Digital IT</u> Students will cover a wider range of devices, factors which affect choice and use of language. Students need to appreciate the importance of planning and will develop an understanding of a range of tools. Students use their theoretical understanding of UI design to develop a system for a given scenario. They will develop an understanding of cloud storage and introduce the cloud, cyber security and the impacts of modern technologies.	<ul style="list-style-type: none"> • Devices • Types of interface • Planning • Interface development • Cloud storage and computing • Cyber security
Year 11	<u>BTEC Technical Digital IT</u> Develop student's knowledge of digital systems and the broader implications of their use. Investigate a range of data collection methods and how each can affect the quality of the data and how they can be used. Develop spreadsheet skills e.g. formatting, formula, functions, graphs, macros. Produce a data dashboard which analyses and presents data in a user-friendly format. Create a series of data summaries.	<ul style="list-style-type: none"> • Data collection and methods • Data sources • Data quality • Spreadsheet modelling skills • Produce a dashboard • Data analysis • Data summaries
Year 12	<u>Cambridge Technicals Level 3 in IT</u> In unit 1 students will learn sound understanding of IT technologies and practices is essential for IT professionals. Information learnt in this unit will provide a solid foundation in the fundamentals of hardware, networks, software, the ethical use of computers and how business uses IT. In unit 2 students will demonstrate the uses of information in the public domain, globally, in the cloud and across the internet, by individuals and organisations. You will discover that good management of both data and information is essential, and that it can give any organisation a competitive edge.	<ul style="list-style-type: none"> • Computer hardware/software • Business IT systems • Employability and communication • Ethical and operational issues • Where information is held • styles, classification and the management of global information • Use of global information • Legal and regulatory framework of storage • Process flow of information • Principles of information security
Year 13	<u>Cambridge Technicals Level 3 in IT</u> In unit 3 students will develop knowledge and understanding of the range of threats, vulnerabilities and risks that impact on both individuals and organisations. They will learn about the solutions that can be used to prevent or deal with cyber security incidents resulting from these challenges. Students will be able to apply your knowledge and understanding of cyber security issues	<ul style="list-style-type: none"> • The role of cyber security • Issues surrounding cyber security • Measures used to protect against cyber security incidents • Managing cyber security incidents.

St Wilfrid's RC College

Computing



Curriculum Overarching Intent

Engaging and practical, encouraging creativity and problem solving. It encourages students to develop their understanding and application of the core concepts in computer science

Prior Learning

- Basic IT concepts and fundamentals
- Basic programming using block coding
- Scratch/Kodu

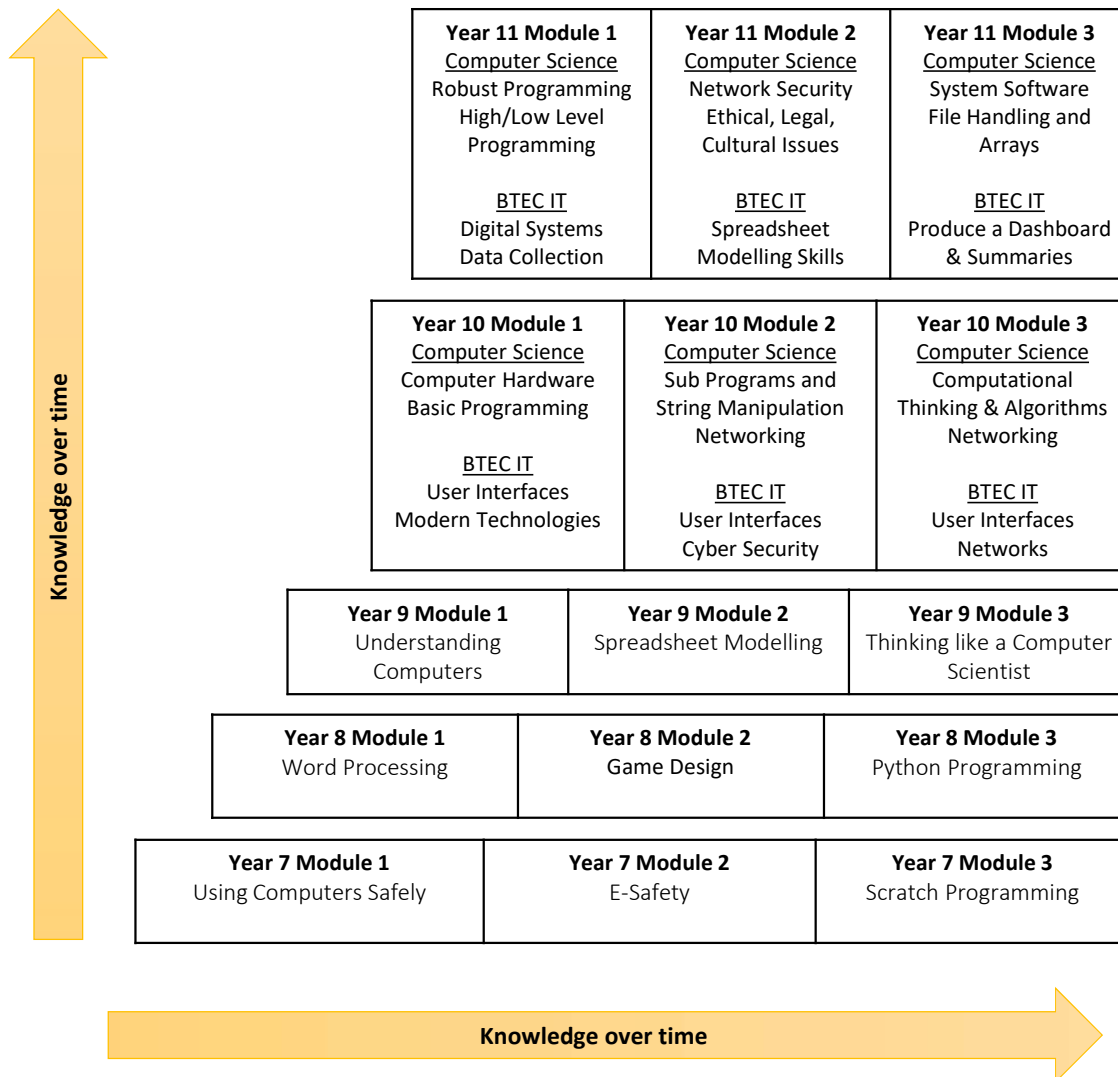
	Vision	Key Concepts and Key Skills
Year 7	Students will learn how to use computers and safely and effectively. They will build upon previous knowledge of e-safety from Key Stage 2 e.g. how to use email and websites securely. They will also use graphical programming language to help students learn to write code and engage in creative thinking using Scratch	<ul style="list-style-type: none"> • Using email • Web security • Creating sprites and scripts • Making Variables
Year 8	Students will learn how use word processing skills and features effectively using Microsoft Word. They will Explore the use of copyright and target audience to design a fame. Students will also be introduced into text-based programming with Python.	<ul style="list-style-type: none"> • Word processing styles, formatting and inserting elements • Game planning and user interfaces • Python programming concepts
Year 9	Students will learn about the different elements of a computer, including binary conversions. They will develop spreadsheet modelling skills that can help in further education and the real world. They will learn about algorithms and ciphers and the use of decomposition and abstraction	<ul style="list-style-type: none"> • Computer hardware • Number conversions • Networking • Spreadsheet formatting and formulae • Abstraction and decomposition • Binary addition
Year 10	<u>GCSE Computer Science</u> Students will learn about the purpose of the CPU and its functionality as well as embedded systems. Develop knowledge on primary and data storage, secondary storage. Students will start to develop hands on programming skills using basic programming constructs in Python and sub programs and string manipulation. They will learn about computational thinking and designing algorithms. Also, they will develop knowledge of networking e.g. client and P2P, encryption, addressing and protocols	<ul style="list-style-type: none"> • Computer hardware • Embedded systems • Primary and secondary storage • Programming constructs • Sub programs and string manipulation • Computational thinking • Algorithms • Networking
Year 11	<u>GCSE Computer Science</u> Students will develop their practical skills to implement more robust programming, leading to testing and refining programs, Boolean logic, circuits and truth tables. Build on network knowledge, looking at network security and risks and identifying and preventing vulnerabilities. Students will learn about system software and operating system responsibilities. Build upon logical skills to look at additional programming techniques e.g. file handling and arrays	<ul style="list-style-type: none"> • Robust programming • Boolean logic • Circuits • Truth tables • Network risks and security • System software • File handling and arrays
Year 12	<u>A Level Computer Science</u> Students will develop the following computer programming and algorithms skills: modular programming skills, object orientated design, database, Visual Basic/C#, recursion. As part of the computer systems aspect of the course: microprocessor architectures, low level programming, data representation.	<ul style="list-style-type: none"> • Visual Studio IDE • Inheritance • Polymorphism • Microprocessor registers • Karnaugh maps
Year 13	<u>A Level Computer Science</u> Students will further develop their computer programming and algorithms skills by studying the following: recursion vs iterative approach, software development cycles, big O notation, searching and sorting algorithms. As part of the computer systems aspect of the course: Von Neumann, Harvard and contemporary microprocessor architectures, encryption and compression, ethical, environmental and legislative issues.	<ul style="list-style-type: none"> • Waterfall lifecycles • Agile programming methodologies • Bubble, insertion, quick sort • Concurrent processing • Computer Misuse Act • Data Protection Act



ICT & Computing

Our Curriculum Progression Model is:

Readiness for their next step...



Key texts and websites that you can access to support their knowledge development in this subject include:

BTEC DIT		GCSE Computer Science
Exam Board website:		
https://www.bbc.co.uk/bitesize/subjects/zqmtsbk www.youtube.com https://www.knowitallninja.com/		https://www.bbc.co.uk/bitesize/subjects/z34k7ty www.youtube.com https://computerscienceuk.com/ https://www.codecademy.com/
Year 7	Year 8	Year 9
https://www.bbc.co.uk/bitesize/guides/z9n9q6f/revision/1 https://www.bbc.co.uk/bitesize/guides/zrtrd2p/revision/1	https://www.bbc.co.uk/bitesize/subjects/zvc9q6f https://www.wikihow.com/Use-Microsoft-Word	https://www.bbc.co.uk/bitesize/subjects/zvc9q6f https://www.bbc.co.uk/bitesize/guides/zdydmp3/revision/1



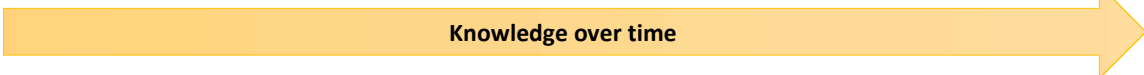
ICT & Computing

Our Curriculum Progression Model is:

Readiness for their next step...



<p>Year 13 Module 1 <u>Computer Science</u> recursion vs iterative approach, software development cycles</p> <p><u>Cambridge Technicals</u> Role/issues of cyber security Measures used to protect against cyber security incidents Managing cyber security incidents.</p>	<p>Year 13 Module 2 <u>Computer Science</u> big O notation, searching and sorting algorithms</p> <p><u>Cambridge Technicals</u> The Internet of things Product development</p>	<p>Year 13 Module 3 <u>Computer Science</u> Von Neumann, Harvard and contemporary microprocessor architectures</p> <p><u>Cambridge Technicals</u> The Internet of things Product development</p>
<p>Year 12 Module 1 <u>Computer Science</u> Modular programming skills, object orientated design</p> <p><u>Cambridge Technicals</u> Computer hardware/software styles, classification and the management of global information</p>	<p>Year 12 Module 2 <u>Computer Science</u> Database, Visual Basic/C#, recursion</p> <p><u>Cambridge Technicals</u> Business IT systems Employability and communication Use of global information Legal and regulatory framework of storage</p>	<p>Year 12 Module 3 <u>Computer Science</u> Microprocessor architectures, low level programming, data representation.</p> <p><u>Cambridge Technicals</u> Ethical and operational issues Process flow of information Principles of information security</p>
<p>Year 11 Module 1 <u>Computer Science</u> Robust Programming High/Low Level Programming</p> <p><u>BTEC IT</u> Digital Systems Data Collection</p>	<p>Year 11 Module 2 <u>Computer Science</u> Network Security Ethical, Legal, Cultural Issues</p> <p><u>BTEC IT</u> Spreadsheet Modelling Skills</p>	<p>Year 11 Module 3 <u>Computer Science</u> System Software File Handling and Arrays</p> <p><u>BTEC IT</u> Produce a Dashboard & Summaries</p>
<p>Year 10 Module 1 <u>Computer Science</u> Computer Hardware Basic Programming</p> <p><u>BTEC IT</u> User Interfaces Modern Technologies</p>	<p>Year 10 Module 2 <u>Computer Science</u> Sub Programs and String Manipulation Networking</p> <p><u>BTEC IT</u> User Interfaces Cyber Security</p>	<p>Year 10 Module 3 <u>Computer Science</u> Computational Thinking & Algorithms Networking</p> <p><u>BTEC IT</u> User Interfaces Networks</p>
<p>Year 9 Module 1 Understanding Computers</p>	<p>Year 9 Module 2 Spreadsheet Modelling</p>	<p>Year 9 Module 3 Thinking like a Comp Scientist</p>
<p>Year 8 Module 1 Word Processing</p>	<p>Year 8 Module 2 Game Design</p>	<p>Year 8 Module 3 Python Programming</p>
<p>Year 7 Module 1 Using Computers Safely</p>	<p>Year 7 Module 2 E-Safety</p>	<p>Year 7 Module 3 Scratch Programming</p>



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Key texts and websites that you can access to support their knowledge development in this subject include:

	Year 12	Year 13
Exam Board website:		
Websites	<p>Computer Science https://www.ocr.org.uk/qualifications/as-and-a-level/computer-science-h046-h446-from-2015/</p> <p>Cambridge Technicals https://www.ocr.org.uk/qualifications/cambridge-technicals/information-technology/#specification-tab-2</p>	<p>Computer Science https://www.ocr.org.uk/qualifications/as-and-a-level/computer-science-h046-h446-from-2015/</p> <p>Cambridge Technicals https://www.ocr.org.uk/qualifications/cambridge-technicals/information-technology/#specification-tab-2</p>
Key texts and books	<ul style="list-style-type: none"> https://www.pgonline.co.uk/resources/computer-science/a-level-ocr/ocr-a-level-textbook/ Trigger Happy: The inner life of videogames - Stephen Poole. The Bug, Ellen Ullman Wired New Scientist 	<ul style="list-style-type: none"> https://www.pgonline.co.uk/resources/computer-science/a-level-ocr/ocr-a-level-textbook/ Accidental Empires, Robert X Cringely Nexus, Ramez Naam Wired New Scientist

	BTEC DIT	GCSE Computer Science
Exam Board websites: Exam Board websites:		
Websites	<p>https://www.bbc.co.uk/bitesize/subjects/zqmts_bk</p> <p>www.youtube.com</p> <p>https://www.knowitallninja.com/</p>	<p>https://www.bbc.co.uk/bitesize/subjects/z34k7ty</p> <p>www.youtube.com</p> <p>https://computerscienceuk.com/</p> <p>https://www.codecademy.com/</p>
Key texts and books	<ul style="list-style-type: none"> Message Not Found, Dante Medema In Real Life, Cory Doctorow Screen Queens, Laurie Goldstein Incredible Doom, Matthew Bogart 	<ul style="list-style-type: none"> https://www.cgpbooks.co.uk/secondary-books/gcse/computer-science/cor42-new-gcse-computer-science-ocr-revision Coding in Python, Sheena Vaidyanathan The CS Detective, Jeremy Kubica The Hive, Barry Lyga and Morgan Baden

	Year 7	Year 8	Year 9
Websites	<p>https://www.bbc.co.uk/bitesize/guides/z9n9q6f/revision/1</p> <p>https://www.bbc.co.uk/bitesize/guides/zrtrd2p/revision/1</p>	<p>https://www.bbc.co.uk/bitesize/subjects/zvc9q6f</p> <p>https://www.wikihow.com/Use-Microsoft-Word</p>	<p>https://www.bbc.co.uk/bitesize/subjects/zvc9q6f</p> <p>https://www.bbc.co.uk/bitesize/guides/zdydmp3/revision/1</p>
Key tasks and books	<ul style="list-style-type: none"> Computational Fairy Tales , Jeremy Kubica The Quite at the End of the World, Lauren James Computer Science 4 Fun Magazine A Brief History of the Future: The Origins of the Internet - John Naughton 	<ul style="list-style-type: none"> Ghost in the Wires, Kevin. D. Mitnick 2001: A Space Odyssey, Arthur. C. Clarke Hello World, Hannah Fry The Ultimate History of Video Games, Steven L. Ken Girl Gone Viral, Arvin Ahmadi 	<ul style="list-style-type: none"> Tron, Brian Dale Beginners Step-By-Step Coding Book, DK Girls Who Code, Reshma Saujani Women in Science, Rachel I Ada Byron Lovelace and the Thinking Machine, Laurie Wallmark