ICT/Computing Journey

"The advance of technology is based on making it fit in so that you don't really even notice it, so it's part of everyday life."
Bill Gates, Co-founder of Microsoft

At Level 3 we complete a Cambridge technical Diploma in IT. We believe it provides good progression from GCSE and continues with the concepts they have explored. The units of study, include both examined units and practical coursework units to prepare students for the world of work or to continue studying at University.
Students will examine complex issues such as ICT in organisations and the role it plays as well as global use of technology. The practical side is in Year 13 where they cover application design, web design and a exam on Cyber Security.

Apprenticeships www.futureme.ac.uk

OR

Level 3 Introductory Diploma in IT

Unit 1 Fundamentals in IT	Unit 2 Global Information	Unit 6 Application design – designing a prototype for an app	Unit 21 Web design and Prototyping – designing a prototype for a web page	Unit 3 – Cyber security
Examined unit - Exam board: OCR	Examined unit - Exam board: OCR	**Optional unit - Coursework**	**Optional unit - Coursework**	Examined unit - Exam board: OCR

University
www.ucas.com
Apprentice
Employment

Year 11

Exam – Edexcel Btec	Revision	Comp 3 LA_D Forms and notation	Comp 3 LA_C Legal and ethical	Comp 3 LA_C Responsible Use	Comp 3 LA-A Modern Technologies

In Y11 students will continue to learn Component 3 the theory and knowledge.. Developing rich conceptual knowledge. They will able to explain how to prevent threats to data responsible, legal and ethical issues. They will continue to learn new ways of how ICT is used ,in the outside world. As a result, they will how explore how organisations use digital systems and the wider implications associated with their use. Students can the consider A Levels as preparation for entry to higher education in a range of subjects, study of a vocational qualification at Level 3, such as a Cambridge Technical Diploma in IT.

Year 10

At GCSE we follow the Btec Digital Information Technology course.. https://qualifications.pearson.com/en/qualifications/btec-tech-awards/digital-information-technology.html
Student will complete the Components and develop Knowledge for theory alongside coursework.

The order is set out by the exam board so students will complete Component 1 first. This builds on the skills/knowledge from Year 9 and will enable them to build on the design and development.

Comp 1 Learning Aim A User interfaces – Theory - *B1 Threats to data*	Comp 1 Coursework set pre-release user interfaces.	Comp 2 LA_A Theory and skills	Comp 2 LA_B Create a dashboard – Pre-release coursework window	Comp 2 LA_C Review dashboard	Comp 3 LA-B Threats to data

Year 9

User Interfaces Design and implement a user interface	Python Programming using a textual language	Cyber Security
B,E, F, G, H, I 4, 5, 6, 7	B, C, D , E, F 1, 3, 6, 7	B, C, E, F, I 3, 6

In Y9 students will spend much of their time exploring various user interfaces used in the Outside world
They will develop a greater grasp how systems work together and the necessary features of a user interface.
This will prepare them for future studies in Btec Digital Information Technology, because they will be able to explain and design the main features and necessary accessibility features to allow all to access technology.

Year 8

Now students have been taught the principles of information and computation, how digital systems work and some experience of writing programs.
There will be a focus on how skills enable them to become active participants in our digital world. Theory B1 Security is also covered.

Y8 will continue to develop these skills by combining multiple applications, developing more programming languages to write programs an improving digital literacy skills.

Project combining application and using VB programming	App Building	Modelling – using spreadsheets to present data in a dashboard
B, C, D, G, H. I 4, 5,6	B, C, D, E, G, H,I 1, 5,6	A, B, D, G 1, 4, 6, 8

Year 7

Modelling using spreadsheet to analyse and make predictions	Game Control using programming	Computing theory using DTP
B,D,E,F,G,H,I – 3,4,5,6,7	B,C, D, F,G,H, I - 1,3,4,5,6	**B**,D,E,F,G,H,I – 3,4,5,6,7

Y7 taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming .This will create foundations of developing their skills and knowledge of computing.

Assessment

Y7-Y8 *Each topic will have 1 formative and 1 summative assessment. These are measured by the skills and knowledge they have gained by producing various documents from software packages, as well as theory knowledge.*

Y9 *Will not be assessed but will be given a taster of what is covered in the Btec Digital Information course.*

Y10 *and* ***11*** *assessment will be in the form of complete coursework that is moderated and sent to exam board. Theory will be assessed using formative and summative assessments, and an external exam for Component 3.*

National Curriculum Content

1. Programming using Scratch to create a game. Developing skills using a programming language to solve a computational problem. Using algorithms, procedures and function.
2. Modelling – using spreadsheets to perform calculations and present results
3. Computing Theory and Desk Top Publishing
4. Presenting information using digital artefacts and programming
5. Creative project combining multiple applications, to program and create digital artefacts.
6. Modelling real world systems and computational thinking
7. Cyber security hardware and software.

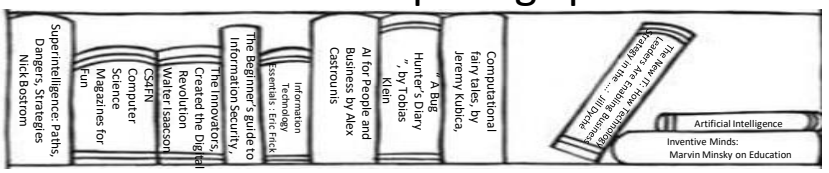
Computing skills in the NC

A	Modelling
B	Computational Thinking
C	Programming
D	Maths for computing
E	Hardware/software components
F	Computer systems storing/executing
G	Using and combining multiple applications, collect, analyse, present information
H	Creating digital artefacts
I	Using technology safely

Curriculum links

English | Maths | Science | Languages
History/ Geog | RE | Art/ DT | Business

Read like a computing specialist



Computing Learning Journey

Computing Narrative for your learning journey

The Computing journey aims to inspire students with curiosity and fascination about the digital world. The curriculum aims to equip students with knowledge and technical skills in a practical learning environment through developing programming languages, modelling, presenting information, developing user interfaces and understanding the theory behind many computing topics. We aim for our students to have a good level of digital literacy and technical skills in order be to be well equipped to enter the digital world we live In today.

The **Year 7** journey at St. Aidan's involves using programming skills and knowledge to create a virtual game developing skills using a programming language to solve computational problems. Developing spreadsheet skills to model real world problems and use calculations to present results. As well as learning some knowledge of theory topics such as security, networks and the background of how computers operate using binary. They will present information using digital artefacts and combine multiple applications.

In **Year 8** students will develop skills combining various applications and use another programming language to create a mini project to present the results. They will then further develop the knowledge and skills needed for programming using a different programming language and enter into the world of app building and developing knowledge on user interfaces. Modelling skills will be developed further using spreadsheets to model real world systems and computational thinking to create pivot tables and charts to present information in a dashboard. Knowledge will be enhanced by learning various theory topics such as protecting the environment when using IT systems and external threats to data.

In **Year 9** students will further develop their knowledge of cyber security and how to prevent threats to IT systems. They will extend their programming skills using a textual language for programming such as, Python. They will then improve their knowledge of user interfaces and design and create an information using a GUI to prepare them for the next step in their education by progressing to BTEC Digital Information technology.

In **Year 10** we follow the exam board Pearson studying the qualification for the Btec Tech Award in Digital Information Technology. The award gives the learners the opportunity to develop sector-specific knowledge and skills in a practical learning environment. In year 10 we will cover the development of key skills that prove their aptitude in digital information such as project planning, designing and creating user interfaces and create dashboards to present and interpret data. They will follow the process that underpins effective ways of working in digital information technology, such as project planning, the iterative design process, cyber security, virtual teams, legal and ethical codes of conduct.

In **Year 11** students will build on Key stage 3 where they will have learned how to use technology responsibly. They will learn how organisations can use technology safely and about cyber security when working in a digital organisation. The knowledge and skills they develop taking this course will give them a basis for further study in a range of subjects including computing, IT, engineering, creative and scientific or to go onto an apprenticeship or entry-level employment where their understanding of technology will be relevant.

In **Year 12** and **13** we follow the exam board OCR specification, due to its good progression from GCSE, practical nature and parallels to studying ICT/Computing at University. The Level 3 Introductory Diploma in IT prepares them with high quality skills and knowledge for a successful future, either at University or in the world of work. Students will **cover** the fundamentals of hardware, networks, software, the ethical use of computers and how business uses IT. Knowledge will be gained of the functionality of information and how data is stored and processed by organisations. They will also learn about how individuals use information of various types and understand the legislation and regulation governing information that flows into and out of an organisation and the constraints and limitations that apply to it. They will develop various practical skills by designing a prototype for an application which could be an app, and developing a website for an organisation. They will then learn about the solutions that can be used to prevent or deal with cyber security incidents resulting from these challenges. You will be able to apply your knowledge and understanding of cyber security issues and solutions by reviewing and making recommendations for ways to best protect digital systems and information.

ICT/Computing is forever changing and rapidly, at St. Aidan's we ensure our students are ready to enter the digital capital of the world leave with the skills and knowledge to further their education or enter into the world of employment.

ICT & Cmputing Assessment Map:			
Year /Cycle	**Sub Concept:**	**Curriculum assessed:**	**Assessment Type**
Year 7 Cycle 1	Theory and desktop Publishing	Theory including parts of a computer, binary code, and networks – Computer Misuse Act	Formative
		Extended writing on Computer Misuse Act	Formative
		Theory including C2 – Law – Computer Misuse Act	**Summative**
Year 7 Cycle 2	Programming using blocks in Scratch	Programming using scratch – blocky code.	Formative
		Extended writing – Why are systems attacked and describe hackers that make the attacks	Formative
		Data flow diagrams D1, programming and B1 security of data – why systems are attacked. Theory , and law C2-Computer misuse act.	**Summative**
Year 7 Cycle 3	Financial modelling in spreadsheets	Spreadsheets, using various formula and B1 security " external Threats - Malware".	Formative
		Extended writing - External Threats to data - Malware	Formative
		Data flow diagrams D1, programming and B1 security of data – why systems are attacked and Malware. Theory , and Law C2-Computer Misuse Act, Spreadsheets	**Summative**
Year 8 Cycle 1	Combining applications using various software programs.	User interfaces	Formative
		Extended writing – C1 -Protecting the environment using IT systems	Formative
		User interfaces – B1 security and all work covered in year 7	**Summative**
Year 8 Cycle 2	App building and programming	App building, user interfaces and security – external threats- phishing pharming DoS	Formative
		Extended writing on Design Principles of a User Interface	Formative
		App building, user interface, B1 - security, C1 Protecting environment - knowledge from all previous units.	**Summative**
Year 8 Cycle 3	Spreadsheets - create a dashboard to present data	Spreadsheets – advanced formulae, creating a dashboard using pivot tables and charts.	Formative
		Extended writing - External data primary secondary - dashboards?	Formative
		All units covered and topics covered in y7 and 8.	**Summative**
Year 9 Cycle 1	Cyber security	Cyber security Theory B1 & B2	Formative
		Extended writing -Law C2 - Data Protection Act 2018	Formative
		Cyber Security and Data Protection Act 2018. All units covered and topics covered in y7 and 8.	**Summative**
Year 9 Cycle 2	Python programming using textual language.	Python programming skills and knowledge.	Formative
		Extended writing -B2 – Ethical Hacker and Penetration testing	Formative
		Programming knowledge, B2 Penetration testing. Cyber Security and Data Protection Act 2018. All units covered and topics covered in y7 and 8.	**Summative**
Year 9 Cycle 2	Develop a User Interface or an information system	Planning to create a user interface, B1- External threats to data – social engineering, man in middle, shoulder surfing	Formative
		Open wifi – threats and how to prevent	Formative
		All topics covered in 7, 8 and 9.	**Summative**

ICT & Computing Assessment Map:			
Year /Cycle	**Sub Concept:**	**Curriculum assessed:**	**Assessment Type**
Year 10 Cycle 1	Component 1	Design Principles	Formative
		Extended writing – Design Principles	Formative
		Pre-release exam coursework	**Summative**
Year 10 Cycle 2	Component 2	Data and spreadsheets	Formative
		Extended writing – Threats to data	Formative
		Pre-release exam coursework.	**Summative**
Year 10 Cycle 3	LA_B and LA_A	B Security	Formative
		Extended writing -Ad Hoc Networks	Formative
		LA_B and Ad hoc networks	**Summative**
Year 11 Cycle 1	LA_A	LA_A Modern technologies	Formative
		Extended writing – A1 Cloud based software or traditional	Formative
		LA_A and LA_B	**Summative**
Year 11 Cycle 2	LA_C	LA_C Legal and Ethical – 1. Shared Data 2. Environmental	Formative
		Extended writing on Data Protection Act 2018	Formative
		LA_A, LA_B and LA_C	**Summative**
Year 11 Cycle 3	Spreadsheets - create a dashboard to present data	LA_D Forms of notation + revision	
		LA_ D summative	Summative
		Mock Exam	**Summative**
Year 12 Cycle 1	Unit 1 Fundamentals of IT	Mock questions from 1.1. to 1.4	Formative
		Extended writing -Law C2 - Data Protection Act 2018	Formative
		Unit 1 mock exam	**Summative**
Year 12 Cycle 2	Unit 2 global Information	Mock questions from 2.1. to 2.4	Formative
		Extended writing -UK legislation and regulation relating to storage and use of information 4.1	Formative
		Unit 2 mock exam	**Summative**
Year 12 Cycle 3	Unit 6 - Coursework Unit 21 - Coursework	Unit 6 and Unit 1 L01	Formative
		Extended writing on Application Development models	Formative
		Unit 6 Lo1 coursework grade and Unit 21 Lo1 coursework grade	**Summative**