

Digital Communications

Intent:

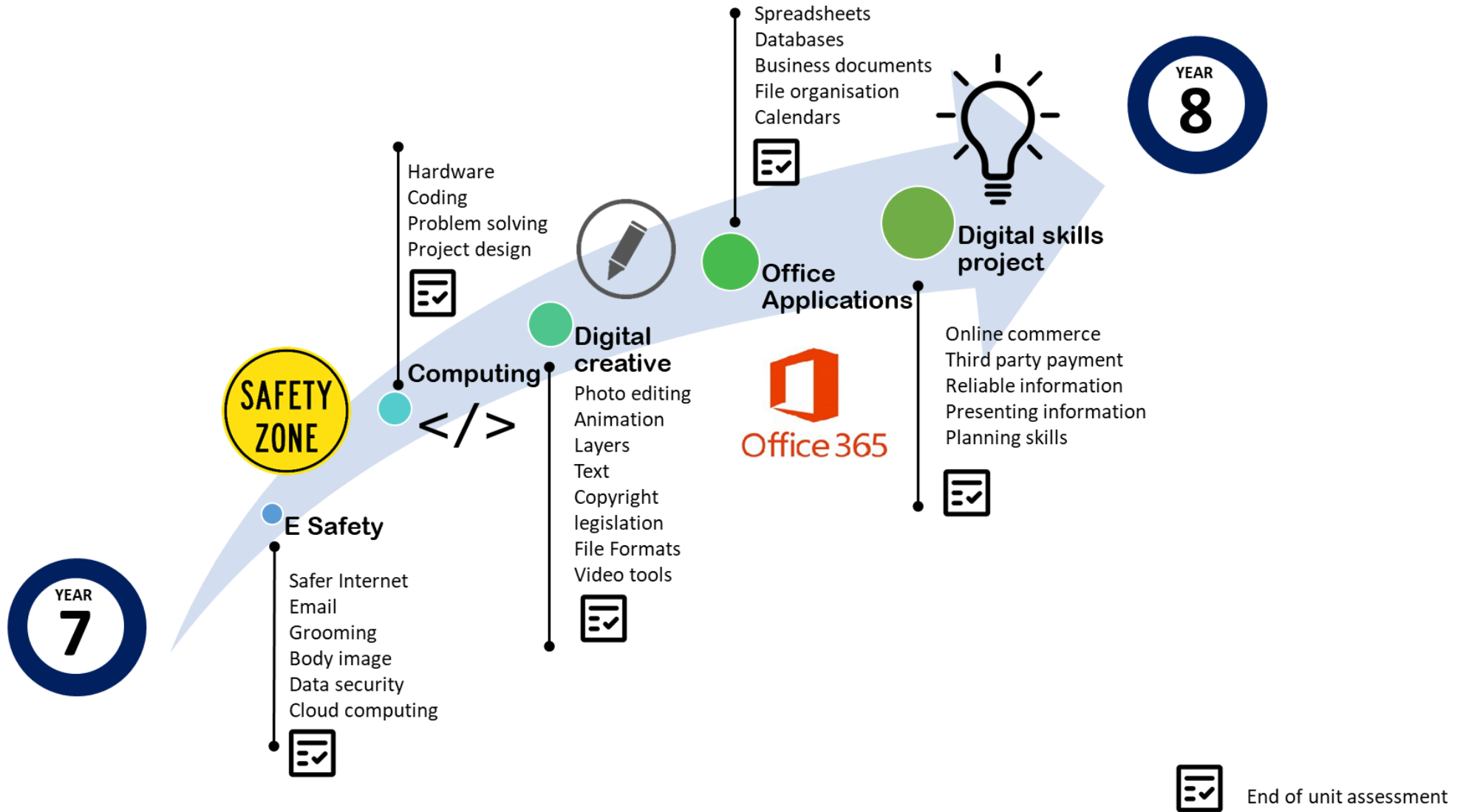
Our curriculum intent is to equip students with the transferable skills required to thrive in our technologically driven world. Students are given the opportunity to experiment with software tools, show independence and take responsibility for their learning. At the heart is our digital literacy program which focuses on safe use of a wide use of services that the Internet provides.

Context:

We are well resourced in terms of hardware and additional equipment such as microbits which are available to engage the learners.

Our students join us with very few skills in terms of network and desktop experience.

Year 7 Digital Communications and Computing



The Big Picture—Intent: The first year of the KS3 curriculum provides learners with an introduction into digital literacy, creative media and computer science. We aim to provide students with a working knowledge of computer hardware and how they work. To build on KS2 knowledge foundation coding through block programming and later Python provides students with a wider knowledge of programming. We aim to give students the experience of a wide range of software which includes photo editing, animation and data handling providing them with the skills in preparation for the next level in their studies.

YEAR 7
DIGITAL COMMS

Content / Units	Skills	Knowledge	Prior—Y6	Next—Y8
E Safety Data security Image editing Coding Database Creative project	Logging into a network. How to save data, folder management. Password security. How to search information, check for reliability. DrawPlus software skills. Adding and manipulating image. Tween, cloning colour effects. Remove background from images Onion skinning Basic understanding of copyright legislation. Use basic commands; Spotting errors; Problem solving; Debugging Interpreting python commands	Develop a wide range of skills and understanding of online etiquette, data security and basic current legislation. Students will understand how to create an effective program that runs without error and be able to explain how the program works, using good application of specialist technical terminology.. Search and disseminate information, present the information suitable for the target audience. Create documents suitable for different types of audience. Have the knowledge to be able to create these suitable for audience and purpose. Discuss how hardware and software is used in a computer system, understand that the system has specific components that are required for full functionality, and be able to relate to programming systems.	Basic programming skills Block coding Simple logic Retrieving data using digital apps Manipulate, store, edit digital content	E Safety Computer Networks Data handling Web design Image editing Computer hardware

Implementation	Marches Futures Links	Summative Assessment
<p>One 55 minute lesson each week.</p> <p>LORIC is developed through class and homework tasks. Leadership is developed through group and paired tasks. Organisation is regularly taught through file organisation and retrieval time planning and task management using project based learning. Communication is key through focused listening to instructions and written tasks. Resilience is promoted with problem solving activities such as coding and programming. Independence is promoted students are encouraged to find alternative solutions and is recognized when achieved.</p> <p>Starter tasks are often an opportunity to recap previous lessons, plenaries to consolidate the learning of the lesson. End of topic tests provide summative assessment an opportunity to resit these is offered to students. Revision resources are provided in the final lesson of each topic to develop these skills.</p> <p>Verbal feedback is frequent in lessons when completing tasks (these can be worksheet completion, research based learning, or practical in nature). New software package tools and skills will be demonstrated by teachers. scaffolding in the form of Internet resources, videos and WAGGOLs can be located from a central data store. Cloud services are regularly used both at home and in school to enhance learning and improve communication between teacher and student.</p>	<p>Well being—learning how to become a member of a safer community online, safe searches, how to identify reliable and non reliable information. Consider before sharing, is this accurate? What would be the impact on others? What action to take if you are not comfortable with something you have viewed online.</p> <p>Families and friendship—consideration for others, think before you post, empathy for others in the community</p>	<p>End of topic tests using Socrative online testing.</p> <p>Autumn 1: Online safety and data security</p> <p>Autumn 2: Computing</p> <p>Spring 1: Digital imaging</p> <p>Spring 2: Coding</p> <p>Summer 1: Data handling</p> <p>Summer 2: Project</p>

Impact:

Students will be able to use a computer network, with the skills to save, create, move and edit files. They will be able to safely navigation the Internet and explain how to report content that they are not comfortable with and recognise that information found is not always reliable. Computer hardware components will be recognised and they will briefly be able to explain their function. An understanding of common IT legislation such as copyright and GDPR will be evident. In programming flowcharts can be created and explained as part of the first steps of programming. Coding and basic programming concepts will be demonstrated, some will be able to problem solve and spot basic syntax errors. Students will be able to run a program and be able to explain the idea of loops and repeat procedures. and the use of different data types. They will have the skills to use basic photo and image tools and be able to combine images and text. Animation creation skills will be developed they will understand the concepts of stop. key frame and tweening.

Year 7 EXPECTED STANDARD AND GREATER DEPTH OUTCOMES

7.1 [Unit 7.1 expected standards](#)

Click link to open MS Form to view

7.2 [Unit 7.2 expected standards](#)

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7.3 [Unit 7.3 expected standards](#)

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7.4 [Unit 7.4 expected standards](#)

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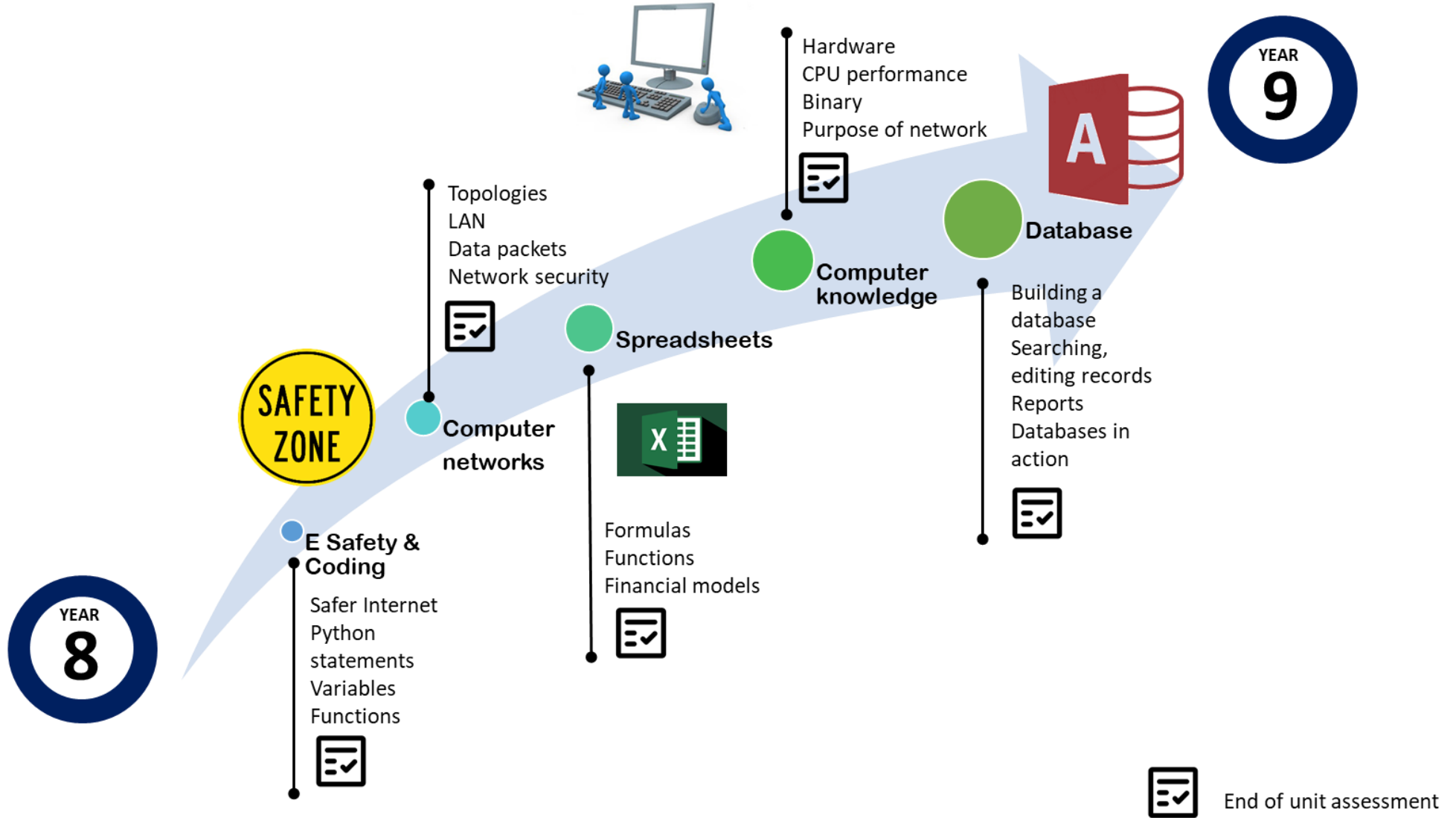
7.5 [Unit 7.5 expected standards](#)

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7.6 [Unit 7.6 expected standards](#)

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Year 8 Digital Communications and Computing



The Big Picture—Intent: The second year of the KS3 curriculum aims to provide learners with an in-depth knowledge of digital literacy and its practical use in the outside world. The aim is to highlight the risks of the Internet and the harm cyberbullying and grooming poses to us as individuals and as a community. There is a return to computer hardware to build on their understanding of how a computer operates and how we can improve performance, together with programming techniques of loops, lists and arrays to build on the foundation towards the KS4 computer science curriculum. The IT sub section of the curriculum aims to improve their software skills in data handling, web design and database search and reporting. The curriculum provides exposure to a broad range of topics from digital literacy, computer science and IT to allow students to progress to the next level in their studies.

YEAR 8
DIGITAL COMMS

Content / Units	Skills	Knowledge	Prior—Y7	Next—Y9
E Safety Coding in Python Computer Networks Spreadsheets Database Web design	Password security. How to search information, check for reliability. Adding and manipulating image. Python using IF, ELIF and difference data types. Spotting errors; Problem solving; Debugging. Interpreting python commands Creating tables, forms, queries and reports in MS Access. Excel using formulas, functions and advanced Web Design inserting images, text, interactive objects and navigation tools..	Develop an understanding of the dangers of social media and other services offered via the internet. Understand the impacts of cyberbullying and body image on mental and physical well being. Their knowledge of security methods and Social media etiquette will be improved. An understanding of how databases are used in business and other organisations in data handling they will be able to explain the function of a spreadsheet model and when to use and give examples. Knowledge of the design process behind web site creation and selecting images to suit audience and purpose. Programming students will have an understanding of testing and the purpose of IF and ELIF statements. Convert denary to binary.	E Safety Data security Image editing Coding Database Creative project	E-safety, body image, grooming, legislation Digital Media Web design Cyber crime Data handling Computational thinking

Implementation	Marches Futures Links	Summative Assessment
<p>One 55 minute lesson each week.</p> <p>LORIC is developed through class and homework tasks. Leadership is developed through group and paired tasks. Organisation is regularly taught through file organisation and retrieval time planning and task management using project based learning. Communication is key through focused listening to instructions and written tasks. Resilience is promoted with problem solving activities such as coding and programming. Independence is promoted students are encouraged to find alternative solutions and is recognized when achieved.</p> <p>Starter tasks are often an opportunity to recap previous lessons, plenaries to consolidate the learning of the lesson. End of topic tests provide summative assessment an opportunity to resit these is offered to students. Revision resources are provided in the final lesson of each topic to develop these skills.</p> <p>Verbal feedback is frequent in lessons when completing tasks (these can be worksheet completion, research based learning, or practical in nature). New software package tools and skills will be demonstrated by teachers. scaffolding in the form of Internet resources, videos and WAGGOLs can be located from a central data store. Cloud services are regularly used both at home and in school to enhance learning and improve communication between teacher and student.</p>	<p>Well being—learning how to become a member of a safer community online, safe searches, how to identify reliable and non reliable information. Consider before sharing, is this accurate? What would be the impact on others? What action to take if you are not comfortable with something you have viewed online.</p> <p>Families and friendship SMSC —consideration for others, think before you post, empathy for others in the community</p>	<p>End of topic tests using Socrative online testing.</p> <p>Autumn 1: eSafety & Python</p> <p>Autumn 2: Computer networks</p> <p>Spring 1: Spreadsheets</p> <p>Spring 2: Computer knowledge</p> <p>Summer 1: Database</p> <p>Summer 2: Web design</p>

Impact:

Students will know how to report web content that concerns them, they will understand how to identify cyberbullying and have empathy with those that find themselves victims. They will be able to report any incidents of cyberbullying. They will understand the influence that celebrities and influencers have on their target audiences. They will be able to identify the network components and explain their purpose. An explanation of a number of security methods can be given. Effective data handling methods can be adopted through the use of MS Access and Excel. Students will be able to explain what components are found in a computer and their functions. They will be able to suggest methods of improving the performance of a computer. In web design they will be able plan and build a website for a given target audience and purpose using a wide range of interactive tools. They will be able to reflect on their performance in topics and explain how they can improve their progress.

Year 7 EXPECTED STANDARD AND GREATER DEPTH OUTCOMES

8.1 [Unit 8.1 expected standrads](#)

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8.2 [Unit 8.2 expected standards](#)

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8.3 [Unit 8.3 expected standards](#)

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8.4 [Unit 8.3 expected standards](#)

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8.5 [Unit 8.5 expected standards](#)

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8.6 [Unit 8.6 expected standards](#)

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Year 9 Digital Communications and Computing



Legislation & Coding

- Copyright law
- Ethics
- Data protection
- Health and Safety
- Statements
- Variables
- Operators
- Logical operators



Digital Media

- File types
- Image quality
- Target audience
- Planning tools
- Photo editing



Cybercrime

- Reliable sources
- Combining media
- Video editing
- CMA
- Fraud
- Security
- Storyboards



Data handling

- Data types
- Filters
- Reports
- Forms
- Advanced query
- Formula
- Function
- Build a model



Web design

- Client brief
- Images
- Multimedia
- Tags
- Navigation
- HTML
- House style



Computational thinking

- Programming principles
- CPU performance
- Fetch execute cycle
- Image representation
- ASCII code
- Encryption
- Binary- denary- Hex



KS4 options in Digital comms.....

- iMedia
- Computer Science
- Information Technologies level 2 certificate

The Big Picture—Intent: The third year of our digital communication curriculum aims to provide students with an in-depth understanding of real life use of digital devices and communications. This is to improve their competence and cultural awareness which they can draw upon in the later life. Computer legislation such as GDPR, Health and safety and copyright law is delivered to prepare them for the workplace. We raise awareness of the economic and environmental issues of which the rise in computer systems has impacted. Cyber crime features prominently to provide students with relevant and up to date knowledge of a wide range of situations in which individuals can find themselves a victim of digital crime. Data handling skills in preparation for the KS4 IT curriculum and programming for the KS4 Computing. The curriculum provides exposure to subjects so that students can make an informed decision on their GCSE choices.

YEAR 9
DIGITAL COMMS

Content / Units	Skills	Knowledge	Prior—Y8	Next—Y10
Legislation and programming Digital media project Cybercrime and security Data handling Web design Computational thinking	Discuss the impact of the spread of computer communications Discuss the impact of trolling on social media Recognising grooming, how to report Conditional execution, error correction, syntax errors Creating tables, forms, queries and reports in MS Access. Excel using formulas, functions and advanced Web Design inserting images, text, interactive objects and navigation tools..	Understanding the difference between ethics and law Principles of a range of computer related laws and how to apply it Know the difference between copyright and plagiarism Understand how social responsibility impacts computer use Understand the benefits of recycling old computer equipment Know what cyberbullying is and the consequences of sending or receiving such material Understand how graphics are used in media and design graphics that are suitable for an specific audience and purpose Understand programming standards, operators, variables, functions and a range of data types Understand how to apply IF and ELIF conditional statements	E Safety Coding in Python Computer Networks Spreadsheets Database Web design	Options: Computer Science Creative iMedia Cambridge National Information Technologies

Implementation	Marches Futures Links	Summative Assessment
<p>One 55 minute lesson each week.</p> <p>LORIC is developed through class and homework tasks. Leadership is developed through group and paired tasks. Organisation is regularly taught through file organisation and retrieval time planning and task management using project based learning. Communication is key through focused listening to instructions and written tasks. Resilience is promoted with problem solving activities such as coding and programming. Independence is promoted students are encouraged to find alternative solutions and is recognized when achieved.</p> <p>Starter tasks are often an opportunity to recap previous lessons, plenaries to consolidate the learning of the lesson. End of topic tests provide summative assessment an opportunity to resit these is offered to students. Revision resources are provided in the final lesson of each topic to develop these skills.</p> <p>Verbal feedback is frequent in lessons when completing tasks (these can be worksheet completion, research based learning, or practical in nature). New software package tools and skills will be demonstrated by teachers. scaffolding in the form of Internet resources, videos and WAGGOLs can be located from a central data store. Cloud services are regularly used both at home and in school to enhance learning and improve communication between teacher and student.</p>	<p>Well being—learning how to become a member of a safer community online, safe searches, how to identify reliable and non reliable information. Consider before sharing, is this accurate? What would be the impact on others? What action to take if you are not comfortable with something you have viewed online.</p> <p>Families and friendship SMSC —consideration for others, think before you post, empathy for others in the community</p>	<p>End of topic tests using Socrative online testing.</p> <p>Autumn 1: Legislation and programming</p> <p>Autumn 2: Digital media project</p> <p>Spring 1: Cybercrime</p> <p>Spring 2: Data handling</p> <p>Summer 1: web design</p> <p>Summer 2: Computational thinking</p>

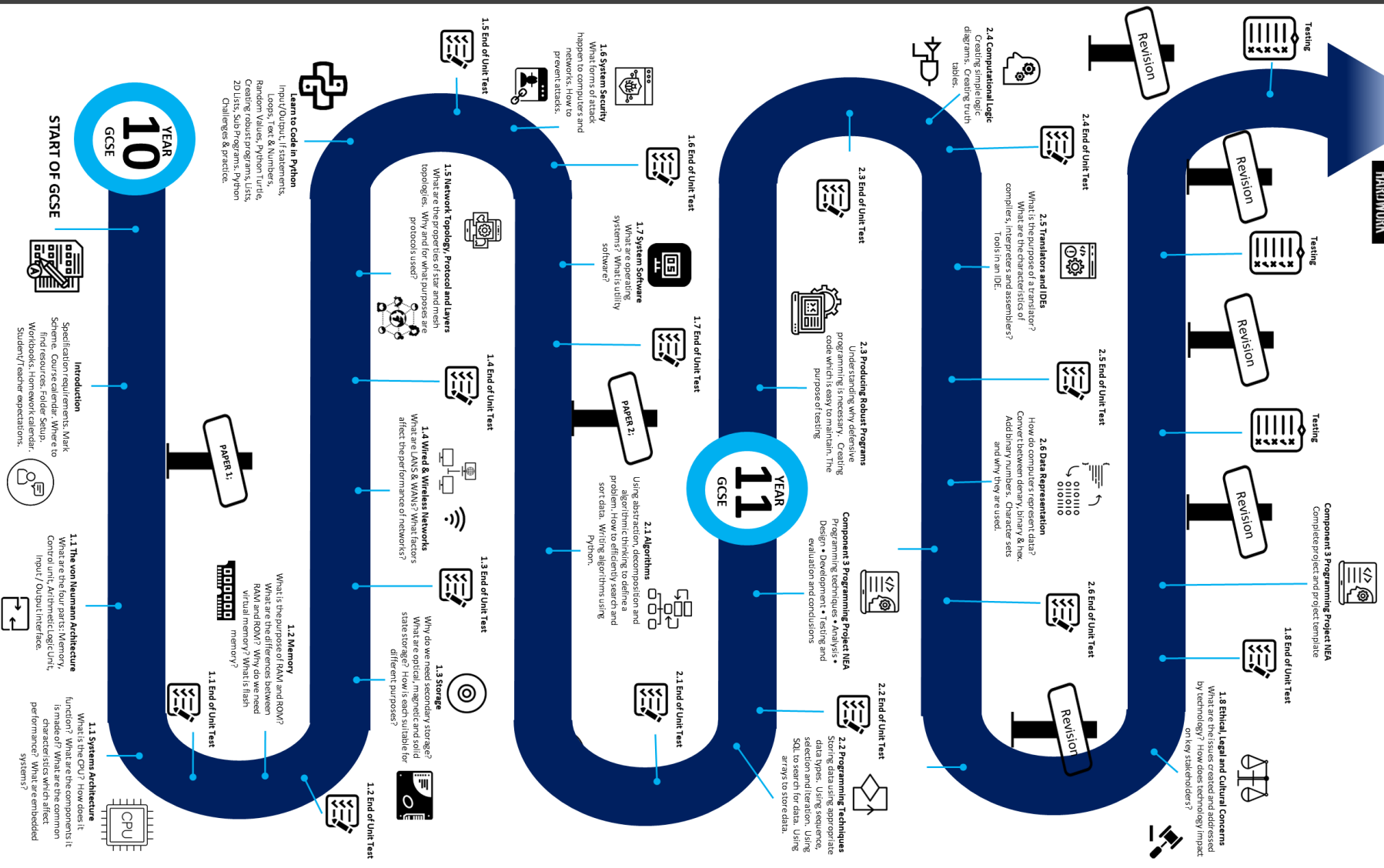
Impact: Students will be safe and confident users of digital devices and the Internet. They will be able to explain the difference between ethical and legal issues and have an improved knowledge of the legislation which will have an impact on their everyday lives. They will understand the impact cyber crime has on individuals and society as a whole and be able to explain a wide range of ways criminals make use of digital devices to commit fraud and identity theft. Their understanding of algorithms and script based languages will be deepened together will their ability to problem solve. Skills in photo editing and web page creation will be expanded. They will be competent in MS Excel and Access skills such as adding formulas, functions, formatting cells, creating tables and designing simple and complex searches.

An understanding of the different pathways to KS4 and KS5 will be clear, students will be able to distinguish between IT; iMedia and computer science topics in preparation for the options process.

OCR 127/6
 Component 1 – Computer Systems 1.5 hrs
 Component 2 – Algorithms and Programming 1.5hrs
 Component 3 – Programming Project (NEA)

SUCCESS COMES FROM HARDWORK

GCSE COMPUTER SCIENCE - LEARNING JOURNEY



Component 3 Programming Project NEA
 Complete project and project template

YEAR 10 GCSE

YEAR 11 GCSE

START OF GCSE

Learn to Code in Python
 Input/Output, If statements, loops, lists & numbers, Random numbers, File handling, Creating robust programs, Lists, 2D Lists, Sub Programs, Python Challenges & practice.

Introduction
 Specification requirements, Mark Scheme, Course calendar, Where to find resources, Folder Setup, Workbooks, Homework calendar, Student/Teacher expectations.

1.1 The von Neumann Architecture
 What are the components of the von Neumann architecture? How does it function? What are the common characteristics which affect performance? What are embedded systems?



PAPER 1:

PAPER 2:

PAPER 3:

PAPER 4:

The Big Picture—Intent: This first year in the GCSE specification will introduce learners to the Central Processing Unit (CPU), computer memory and storage, wired and wireless networks, network topologies, system security and system software. It is expected that learners will become familiar with the impact of Computer Science in a global context through the study of the ethical, legal, cultural and environmental concerns associated with Computer Science.

**YEAR 10
CS**

Content / Units	Skills	Knowledge	Prior—Y9	Next—Y11
Systems Architecture • Network topologies, protocols and layers • Memory • System security • Storage • Ethical, legal, cultural and environmental concerns • Wired and wireless networks	Think creatively, innovatively, analytically, logically and critically Apply mathematical relevant to computer science Analyse problems in computational terms through practical experience of solving such problems, including designing, writing and debugging programs	Understand and apply the fundamental principles and concepts of Computer Science, including abstraction, decomposition, logic, algorithms, and data representation Understand the components that make up digital systems, and how they communicate with one another and with other systems Understand the impacts of digital technology to the individual and to wider society	Legislation and programming Digital media project Cybercrime and security Data handling Web design Computational thinking	<ul style="list-style-type: none"> • Algorithms • Programming techniques • Producing robust programs • Computational logic • Translators and facilities of languages • Data representation
Implementation		Marches Futures Links		Summative Assessment
Three 55 minute lesson each week LORIC is developed through class and homework tasks. Leadership is developed through group and paired tasks. Organisation is regularly taught through file organisation and retrieval time planning and task management using project based learning. Communication is key through focused listening to instructions and written tasks. Resilience is promoted with problem solving activities such as coding and programming. Independence is promoted students are encouraged to find alternative solutions and is recognized when achieved. Starter tasks are often an opportunity to recap previous lessons, plenaries to consolidate the learning of the lesson. End of topic tests provide summative assessment an opportunity to resit these is offered to students. Revision resources are provided in the final lesson of each topic to develop these skills. Verbal feedback is frequent in lessons when completing tasks (these can be worksheet completion, research based learning, or practical in nature). Scaffolding in the form of Internet resources, videos and WAGGOLs can be located from a central data store. Cloud services are regularly used both at home and in school to enhance learning and improve communication between teacher and student.		Careers and Enterprise		Autumn Term Unit 1.1 end of topic test Unit 1.2 end of topic test Unit 1.3 end of topic test Lesson by lesson low stake test - starters Spring Term Unit 1.4 end of topic test Unit 1.5 end of topic test Unit 1.6 end of topic test Lesson by lesson low stake test - starters Summer Term Unit 1.7 end of topic test Unit 1.8 end of topic test Unit 2.1 end of topic test Lesson by lesson low stake test - starters

Impact: Students will be able to demonstrate and apply knowledge and understanding of the key concepts and principles of Computer Science such as system architecture, memory, storage, wired and wireless networks including topologies. They will understand the impact that digital technology had on the individual and on the wider society. They will be able to apply their mathematical skills in the form of converting binary to denary conversion and hexadecimal. An understanding of how system and operating software functions with hardware, they will be able to explain the function of utility software and the methods of producing back ups. Students will be able to explain the various forms of system attacks and justify a method of preventing such vulnerabilities. Various network protocols will be able to be identified with an explanation of where each is used. They will be able to explain the need for secondary storage and give the advantages and disadvantages of each. An explanation of the CPU system architecture and it's purpose will be evident; and how the CPU functions, they will be able to identify the common characteristics and explain how they affect it's performance.

The Big Picture—Intent: This second year component incorporates and builds on the knowledge and understanding gained in Component 01, encouraging learners to apply this knowledge and understanding using computational thinking. Students will be introduced to algorithms and programming, learning about programming techniques, how to produce robust programs, computational logic, translators and facilities of computing languages and data representation. Students will become familiar with computing related mathematics. Learners may draw on some of this content when completing the Programming Project.

YEAR 11
CS

Content / Units	Skills	Knowledge	Prior—Y10	Next—Y12
<ul style="list-style-type: none"> Algorithms Programming techniques Producing robust programs Computational logic Translators and facilities of languages Data representation 	<ul style="list-style-type: none"> valuable thinking and programming skills Programming techniques Use of translators and facilities of languages Producing robust programs Testing 	<p>An understanding of computational thinking and how to apply it through a chosen programming language.</p> <p>An understanding of current and emerging technologies, how they work and how to apply this knowledge and understanding in a range of contexts.</p> <p>An understanding of computer technology</p> <p>Develop knowledge and understanding to a range of contexts, specifically in developing computer programs to solve problems.</p>	<p>Systems Architecture</p> <ul style="list-style-type: none"> Network topologies, protocols and layers Memory System security Storage Ethical, legal, cultural and environmental concerns Wired and wireless networks 	

Implementation	Marches Futures Links	Summative Assessment
<p>Two 55 minute lesson each week</p> <p>LORIC is developed through class and homework tasks. Leadership is developed through group and paired tasks. Organisation is regularly taught through file organisation and retrieval time planning and task management using project based learning. Communication is key through focused listening to instructions and written tasks. Resilience is promoted with problem solving activities such as coding and programming. Independence is promoted students are encouraged to find alternative solutions and is recognized when achieved.</p> <p>Starter tasks are often an opportunity to recap previous lessons, plenaries to consolidate the learning of the lesson. End of topic tests provide summative assessment an opportunity to resit these is offered to students. Revision resources are provided in the final lesson of each topic to develop these skills.</p> <p>Verbal feedback is frequent in lessons when completing tasks (these can be worksheet completion, research based learning, or practical in nature). Scaffolding in the form of Internet resources, videos and WAGGOLs can be located from a central data store. Cloud services are regularly used both at home and in school to enhance learning and improve communication between teacher and student.</p>	<p>Careers and Enterprise—allows students to make informed decisions about further learning opportunities and career choices.</p>	<p>Autumn Term</p> <ul style="list-style-type: none"> Unit 2.2 end of topic test Unit 2.3 end of topic test Unit 2.4 end of topic test Lesson by lesson low stake test - starters <p>Spring Term</p> <ul style="list-style-type: none"> Unit 2.5 end of topic test Unit 2.6 end of topic test Programming project (NEA) – 20 hours Lesson by lesson low stake test - starters <p>Summer Term</p> <ul style="list-style-type: none"> Lesson by lesson low stake test – starters Component 1 & 2 external written paper

Impact: Students will have an understanding of current and emerging technologies, how they work and how to apply this knowledge and understanding in a range of contexts. It gives students the technical skills and understanding of the use of algorithms in computer programs to solve problems using programming. Students will have developed their knowledge and understanding of computer technology to become independent and discerning Computer Scientists, who are able to make informed decisions about its use while being aware of the implications of different technologies. Students will have acquired and be able to apply technical skills, knowledge and understanding to a range of contexts, specifically in developing computer programs to solve problems. Through the 20 hours of timetable dedicated to the programming project students will be able to analyse problems in computational terms to make reasoned judgments and to design, program, evaluate and refine solutions.

The Big Picture—Intent: The first year of the qualification allows learners to explore the wide range of uses of hardware, application and specialist software in society. They will investigate how information technology is used in a range of contexts, including business and organisations, education and home use of information technology. Unit 2 provides students with the skills to tackle the controlled assessment tasks which are scenario based. This enables learners to gain a broad working knowledge of databases, spreadsheets, automated documents and images and to apply their knowledge and understanding to solve problems in vocational settings.

YEAR 10
WJEC TECH
AWARD IT

Content / Units	Skills	Knowledge	Prior—Y9	Next—Y11
<p>Unit 1: 1.3 Legal, moral, ethical, cultural and environmental impacts of IT and the need for cyber-security</p> <p>Unit 2; ICT in Context (skills for controlled assessment, Access, Excel, mail merge)</p>	<p>Planning, creating, modifying and using databases</p> <p>Planning, creating, modifying and using spreadsheets</p> <p>Planning, creating and modifying an automated document</p> <p>Planning, creating, manipulating and storing images</p>	<p>An understanding of how IT can be used to fulfil the needs of organisations and individuals</p> <p>An understanding of how data and information is used and transferred</p> <p>An understanding of why data must be fit for purpose, and how input data is checked for errors)</p> <p>Knowledge of risks to computer systems, impact of data loss, how legal issues protect computer users. An understanding that your digital footprint can impact on users.</p>	<p>Legislation and programming</p> <p>Digital media project</p> <p>Cybercrime and security</p> <p>Data handling</p> <p>Web design</p> <p>Computational thinking</p>	<ul style="list-style-type: none"> Unit 1.1 How IT can be used to fulfil that needs of organisations and individuals. Unit 1.2 How data and information is used and transferred <p>Unit 2—re-sits</p>

Implementation	Marches Futures Links	Summative Assessment
<p>Three 55 minute lesson each week</p> <p>LORIC is developed through class and homework tasks. Leadership is developed through group and paired tasks. Organisation is regularly taught through file organisation and retrieval time planning and task management using project based learning. Communication is key through focused listening to instructions and written tasks. .</p> <p>Starter tasks are often an opportunity to recap previous lessons, plenaries to consolidate the learning of the lesson. End of topic tests provide summative assessment an opportunity to resit these is offered to students. Revision resources are provided in the final lesson of each topic to develop these skills.</p> <p>Verbal feedback is frequent in lessons when completing tasks (these can be worksheet completion, research based learning, or practical in nature). Scaffolding in the form of Internet resources, videos and WAGGOLs can be located from a central data store. Cloud services are regularly used both at home and in school to enhance learning and improve communication between teacher and student.</p>	<p>Careers and Enterprise</p> <p>Well being and prevention</p>	<p>Autumn Term</p> <p>Unit 2—task 1 Unit 2—task 2</p> <p>Spring Term</p> <p>Unit 2—task 3 Unit 2—task 4</p> <p>Summer Term</p> <p>Unit 1 topic 3 end of unit theory test</p>

Impact: Students will be able to plan, design and interrogate a database and spreadsheet. They will have the skills to create a user interface for the appropriate data handling method and test using a range of test data. They will be able to evaluate their chosen solution and identify ways in which it can be improved by understanding the weaknesses and strengths of the system. They will have spreadsheet skills to use appropriate formulas and functions to meet set outcomes. Modifying data and formulas to model 'what if' scenarios. Mail merge documents will be planned and created by inserting fields which will be outputted to the required format. Unit 1 content will enable them to identify the risks to information held on computers, explain the impact of data loss and be able to give methods used to protect data. They will understand how moral and ethical issues affect computer users and how laws protect data and users. Students will be aware of the impact of cultural, personal and environmental impact of ICT such as e-waster, digital divide, net neutrality, mental health, transport, teleworking and emerging technologies.

The Big Picture—Intent: The second year of the course focuses on units 1.1 and 1.2. These units will give the learners an opportunity to explore how organisations and individuals use IT. They will see real life examples of hardware and software, and discuss the different types of software that is needed for a wide range of IT services. They will get an introduction to services provided by IT such as banking, entertainment, AI and expert systems. Students will learn how to identify the difference between local and wide area networks, different topologies and how data is transferred over a network. Other areas include the importance of error checking, why data needs to be fit for purpose. Connectivity types are also explored.

**YEAR 11
WJEC TECH
AWARD IT**

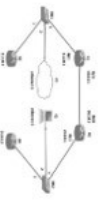
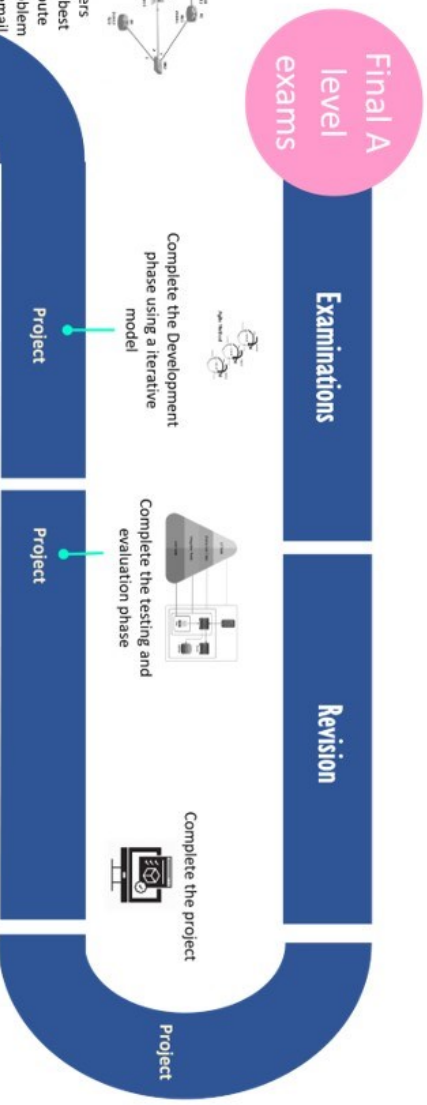
Content / Units	Skills	Knowledge	Prior—Y10	Next—Y12
<ul style="list-style-type: none"> Unit 1.1 How IT can be used to fulfil the needs of organisations and individuals. Unit 1.2 How data and information is used and transferred# Unit 2—re-sits of controlled assessments (see year 10 overview) 	<ul style="list-style-type: none"> Identify software and hardware Applying validation How to compress data Identify network technologies Recognising how IT services improves efficiency/productivity/businesses and individual users 	<p>Understand the components that make up digital systems, and how they communicate with one another and with other systems</p> <p>Students will understand why that data consists of facts and figures and knowledge is derived from information by applying rules to it.</p> <p>Understand relevant data capture and validation methods.</p> <p>Understand the difference between a LAN and WAN and the purpose of protocols.</p>	<p>Unit 1: 1.3 Legal, moral, ethical, cultural and environmental impacts of IT and the need for cybersecurity</p> <p>Unit 2; ICT in Context (skills for controlled assessment, Access, Excel, mail merge)</p>	

Implementation	Marches Futures Links	Summative Assessment
<p>Two 55 minute lesson each week</p> <p>LORIC is developed through class and homework tasks. Leadership is developed through group and paired tasks. Organisation is regularly taught through file organisation and retrieval time planning and task management using project based learning. Communication is key through focused listening to instructions and written tasks. Resilience is promoted with problem solving activities such as coding and programming. Independence is promoted students are encouraged to find alternative solutions and is recognized when achieved.</p> <p>Starter tasks are often an opportunity to recap previous lessons, plenaries to consolidate the learning of the lesson. End of topic tests provide summative assessment an opportunity to resit these is offered to students. Revision resources are provided in the final lesson of each topic to develop these skills.</p> <p>Verbal feedback is frequent in lessons when completing tasks (these can be worksheet completion, research based learning, or practical in nature). Scaffolding in the form of Internet resources, videos and WAGGOLs can be located from a central data store. Cloud services are regularly used both at home and in school to enhance learning and improve communication between teacher and student.</p>	<p>Careers and Enterprise—allows students to make informed decisions about further learning opportunities and career choices.</p> <p>Well being and prevention</p>	<p>Autumn Term Unit 2—re-sit controlled assessment Unit 1.1— end of topic test</p> <p>Spring Term Unit 1.2—end of topic test</p> <p>Summer Term Unit 1.3—recap end of topic test. Mock—Unit 1</p>

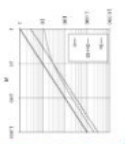
Impact: Students will be able to demonstrate and apply knowledge of the key concepts and principles of Computer systems such as architecture, memory, storage, wired and wireless networks including topologies. An understanding of how system and operating software functions with hardware, they will be able to explain the function of utility software and the methods of producing back ups. Students will be able to explain the various forms of system attacks and justify a method of preventing such vulnerabilities. Various network protocols will be able to be identified with an explanation of where each is used. They will be able to explain the need for secondary storage and give the advantages and disadvantages of each. They will be able to explain the importance of accurate data and have the skill to apply validation to overcome data entry errors. An understanding of the difference between cloud computing vs in house servers will allow students to explain the circumstances when one it the best fit for purpose.

<p>The Big Picture—Intent: The intent of our Creative iMedia curriculum is to ensure students have the ultimate experience and understanding of designing. The process of Design gives students challenging opportunities to find solutions to problems. The process of creative thinking and innovation inspires students to bring out undiscovered talents, which in turn cultivates a self-confidence and belief in their abilities to achieve. It also challenges and appeals to the creative instincts that have driven humanity to discover, adapt and overcome. Within this spectrum of ability development, Creative iMedia’s course seeks to develop these. Every product we see, purchase and use has been designed, a problem, solved and designers are at a seminal point development. Students will be developing an understanding of environmental design and sustainable issues, supporting the environment and their communities.</p>				<p>SINGLE YEAR QUAL iMEDIA</p>
Content / Units	Skills	Knowledge	Prior—Y9	Next—Y12
<p>R081: Pre-production skills</p> <p>R082: Creating digital graphics</p> <p>R084: Storytelling with a comic strip</p> <p>R085: Creating a multi-page website</p>	<p>Digital image editing, Pre production skills mind mapping, mood boards, script writing, storyboards. Creating workplans</p> <p>Source and create assets for a given scenario. Researching, planning</p> <p>Interpreting a client brief Decision making skills</p> <p>Saving, versioning exporting files to a suitable format.</p>	<p>Understand the purpose and content of pre-production</p> <p>Understand the properties and features of multipage websites</p> <p>Understanding of why we produce graphics and its restrictions</p> <p>Understand the basics of digital graphics editing for the creative and digital media sector</p> <p>Understand the purpose and properties of digital graphics and know where and how they are used.</p> <p>Understand the features and settings of digital photographic equipment, be able to plan a photo shoot, review the digital photographs and review the final portfolio against a specific brief</p>	<p>Legislation and programming</p> <p>Digital media project</p> <p>Cybercrime and security</p> <p>Data handling</p> <p>Web design</p> <p>Computational thinking</p>	<p>BTEC level 3 in Information Technology</p> <p>OR</p> <p>A level in Computing</p>
Implementation		Marches Futures Links		Summative Assessment
<p>Students will study 5 hours a week. Lessons will be a combination of theory and practical tasks.</p> <p>LORIC skills are promoted in lessons building on problem solving, resilience, group work leadership, communication listening or speaking when appropriate. Organisation of files/folders. Students are encouraged to show initiative and praised when this is identified.</p> <p>Learners will ultimately be creating fit-for-purpose creative media products. Tasks will challenge all learners, including high attaining learners, by introducing them to demanding material and techniques; encouraging independence and creativity and providing tasks that engage the student. The units selected from this qualification will allow learners the freedom to explore the areas of creative media that interest them as well as providing good opportunities to enhance their learning.</p> <p>Scaffolding in the form of a wide range of resources support students in their independence. Peer assessment, identifying improvements for others to make further help students to develop their independence. Teachers will often ask students to identify three revisions made to their original submissions with reasons.</p> <p>Literacy skills are developed by applying key word terminology and reviewing of digital products. Students will demonstrate analytical and interpretation skills (of situations and/or results) and the ability to formulate valid well-argued responses. Learners will evaluate and justify</p>		<p>Careers and Enterprise—allows students to make informed decisions about further learning opportunities and career choices.</p>		<p>Autumn Term R082 outcome of brief Peer assessment feedback and impact R085 outcome of brief Keyword literacy test</p> <p>Spring Term R091 outcome of brief Peer assessment feedback and impact Keyword literacy test</p> <p>Summer Term R081 – topic test past paper questions R081 – External Keyword tests – recall, use, explain</p>
<p>Impact: Creative iMedia students will be equipped learners with a range of creative media skills and provide opportunities to develop, in context, desirable, transferable skills such as research, planning, and review, working with others and communicating creative concepts effectively. Through the use of these skills, learners will ultimately be able to create fit-for-purpose creative media products which will enhance their employability. They will have a robust understanding of relevant legislation and the consequences of breaking the boundaries of these laws. Students will have had the opportunity to use their imagination and be creative in their learning. A wide range of skills such as photo editing, combining vector and bitmap images together with web site development tools will have been utilised to design and produce a product that meets a client brief.</p>				

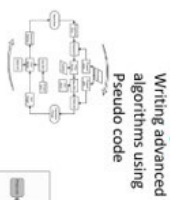
Years 12-13 Computer Science LEARNING JOURNEY



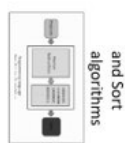
How computers work, out the best and fastest route to solve a problem e.g. send an email



How to work out the time taken to execute an algorithm



Writing advanced algorithms using Pseudo code



Search and Sort algorithms



Complete the design elements, algorithms, usability, test design

Algorithms

Computational Thinking

Problem Solving

DATA Structures

DATA Types

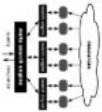
subtraction of binary numbers, how computers handle decimals and multiply and divide binary numbers



Develop coding skills in functions within Python



How search engines find all the information they present at your fingertips



Extend network knowledge from GCSE including coding using HTML/CSS and JavaScript languages



Introduce new Software development Skills (AGILE, RAD)



YEAR 12

Components of a computer and their uses
Knowledge organiser
Independent



YEAR 13

Problem recognition

Plan and analyse your choice of project completing your Analysis before the summer break



Project

Computational Thinking

Boolean Algebra

Boolean Algebra

LUA

DATA Structures

DATA Structures

Python functions

DATA Types

Python functions

Python functions

Components of a computer and their uses
Knowledge organiser
Independent



The Big Picture—Intent: The first year of the A level Computer science qualifications provides students with an opportunity to apply the fundamental principles and concepts of computer science including; abstraction, decomposition, logic, algorithms and data representation . Students will analyse problems in computational terms through practical experience of solving problems including writing programs building on their resilience and initiative. The course enables learners to thinking creatively, innovatively, analytically, logically and critically. Mathematical skills will be developed through the simplification of Boolean algebra and binary

YEAR 12
CS

Content / Units	Skills	Knowledge	Prior—Y11	Next—Y13
Component 1—Computer systems Component 2—algorithm and programming	Algorithms and programming component (02) relates principally to problem solving skills needed by learners to apply the knowledge and understanding encountered in Component 01. Mathematical skills are embedded throughout the content of the three components. Problem solving, communication, analysing problems.	Understand the internal workings of the CPU Understand software developments, data types and legal and moral issues Understand processors, input output devices and their use in solving a problem Understand the purpose of different system software and operating software Understand the waterfall lifecycle, agile methodologies, extreme programming, the spiral model and rapid application development	<ul style="list-style-type: none"> Algorithms Programming techniques Producing robust programs Computational logic Translators and facilities of languages 	Component 03—programming project Consolidation of component 01 and 02

Implementation	Marches Futures Links	Summative Assessment
<p>Students study 5 hours a week</p> <p>LORIC is developed through class and homework tasks. Leadership is developed through group and paired tasks. Organisation is regularly taught through file organisation and retrieval time planning and task management using project based learning. Communication is key through focused listening to instructions and written tasks. Resilience is promoted with problem solving activities such as coding and programming. Independence is promoted students are encouraged to find alternative solutions and is recognized when achieved.</p> <p>Starter tasks are often an opportunity to recap previous lessons, plenaries to consolidate the learning of the lesson. End of topic tests provide summative assessment an opportunity to resit these is offered to students. Revision resources are provided in the final lesson of each topic to develop these skills.</p> <p>Verbal feedback is frequent in lessons when completing tasks (these can be worksheet completion, research based learning, or practical in nature). Scaffolding in the form of Internet resources, videos. Cloud services are regularly used both at home and in school to enhance learning and improve communication between teacher and student.</p>	<p>Pathways to a wide range of university courses.</p> <p>Opportunities for apprenticeships in the local area.</p>	<p>Autumn term:</p> <p>Structure and Function of Processor</p> <p>Types of Processor</p> <p>Spring term:</p> <p>Input, Output and storage</p> <p>System software</p> <p>Data Types</p> <p>Summer term</p> <p>Boolean algebra</p> <p>Networks</p> <p>Ethic, moral, cultural</p>

Impact: Students will be able to demonstrate knowledge and understanding of the principles and concepts of computer science, including abstraction, logic, algorithms and data representation. They will be able to apply knowledge and understanding of the principles and concepts of computer science including how to analyse problems in computational terms. Problem solving skills will have been developed and algorithms can be interpreted and explained. Programming skills will be proficient and students will have the ability to abstract and reason about error handling, performance, and correctness of the code. They will be able to conduct simplification of Boolean expressions, convert binary and conduct binary arithmetic. Learners will draw on the component 01 and 02 content when studying computational thinking, developing programming techniques and devising their own programming approach in the Pro-

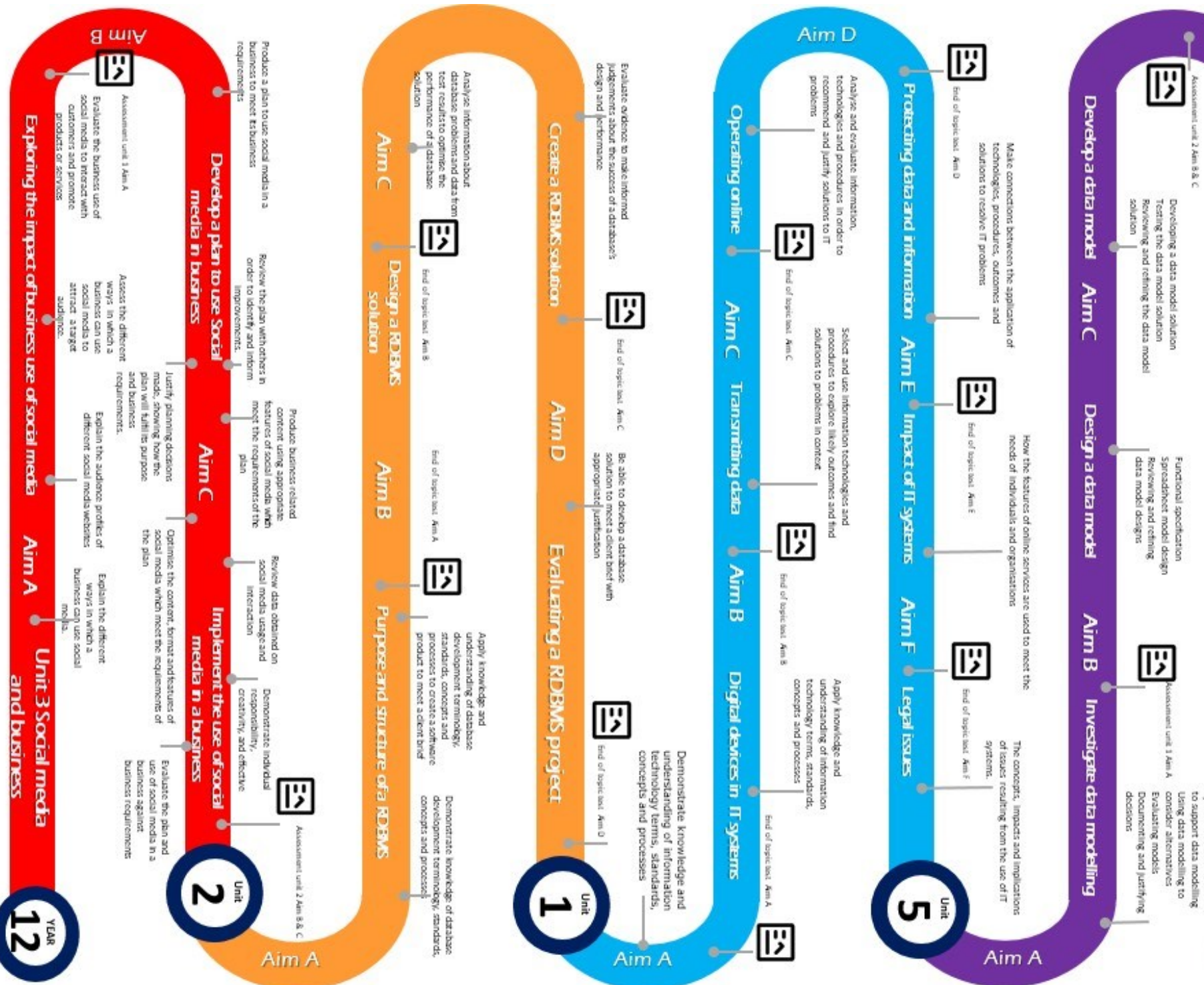
The Big Picture—Intent: The second year of the A level course moves towards embedding the skills learnt in component 02, providing students with the opportunity to practice their programming and problem solving skills. Students will use algorithms to describe the problems and then use the computational thinking skills learnt to apply a computational solution. Through the programming project they will use the agile development approach to document their solutions, through analysis, development and evaluation.

YEAR 13
CS

Content / Units	Skills	Knowledge	Prior—Y12	
Component 03— Programming project	Mathematical skills Computational thinking	Understand data types and their uses correct selection for program solution	Component 1— Computer systems	
Component 02— algorithm and programming	Problem solving—using algorithms to describe the problem Abstraction, Decomposition Report writing	Abstraction—understanding of the methods used for data, procedural and functional abstraction Understanding of the Agile project development process Be able to describe the essential features of a computational solution	Component 2— algorithm and programming	
Implementation		Marches Futures Links		Summative Assessment
<p>Students study 5 hours a week</p> <p>Resources are provided in the form of PowerPoints, worksheets, videos and WAGGOLLS. Students are encouraged to learn independently to develop their programmed solution and document their solution. Students are encouraged to use their initiative to solve problems and resilience is a key attribute to success.</p> <p>Interleaving and retrieval practice are key elements of our curriculum approach and will inform our teaching of Component 3 to allow students to see the bigger picture and how all elements of programming can be used to develop a computation solution. They will make use of exemplar material, writing frames and mark scheme to develop student exam technique and to allow them to strive to achieve high band marks.</p> <p>Exam technique will be the focus for the latter part of the course.</p>		<p>Pathways to a wide range of university courses.</p> <p>Opportunities for apprenticeships in the local area.</p>		<p>Autumn</p> <p>Mock</p> <p>Component 02— topic tests</p> <p>Spring</p> <p>Programming report</p> <p>Component 01—topic tests</p> <p>Summer</p> <p>Component 01 & 02 –selected units in preparation for final exam</p>

Impact: Students will be able to analyse, design, develop, test, evaluate and document a program written in a suitable programming language. Students will approach the project by applying the principles of computational thinking to a practical coding problem. They will make use of appropriate principles from an agile development approach to the project development. Students will understand the term abstraction and its purpose in the design and creation of computer programs together with the benefits of abstraction and apply these benefits to their specific program project. They will understand that decisions are made within programs, and be able to identify where these decisions will take place within an algorithm or program. Understanding of the constructs of sequence, iteration and branching will be evident. They will be able to use these constructs independently of each other, and combine them to produce a solution.

BTECL3 IT Learning Journey



The Big Picture—Intent: The first year of this course is designed to give learners the opportunity to develop their knowledge and skills in data management and social media use in business. They will have hands on experience of producing a solution for a data management system and a social media campaign for a business. They are provided with the opportunity to develop their soft skills such as communication, organisation and initiative as they experience contacting business owners whilst they develop a solution to improve customer engagement. An opportunity to improve employability skills such as cognitive and problem

**YEAR 12
BTEC IT**

Content / Units	Skills	Knowledge	Prior—Y11	Next—Y13
Unit 2—Creating systems to manage Information Unit 3—Using social media in Business	Select and use information technologies and procedures to explore likely outcomes and find solutions to problems in context Create a MS Access database with relevant objects for a given scenario and data set.	Analyse and evaluate information, technologies and procedures in order to recommend and justify solutions to IT problems Make connections between the application of technologies, procedures, outcomes and solutions to resolve IT problems Knowledge of database development terminology, standards, concepts and processes Understanding of database development terminology, standards, concepts and processes to create a software product to meet a client brief	BTEC certificate in IT	BTEC extended certificate information technology. Unit 1—Information technology systems Unit 5—Data modelling

Implementation	Marches Futures Links	Summative Assessment
<p>Students study 5 hours a week</p> <p>Lessons are blended in nature, some will be independent after following a demonstration the practical tasks for unit 2 (externally assessed) are frequently practiced. Past paper tasks and used to assess progress. Homework is used to consolidate database theory. Online resources (mostly videos that demonstrate the MS access skills) scaffold learning.</p> <p>Unit 3—theory is delivered via a combination of individual, paired and group tasks. WAGOLLS are available for past, merit and distinction criteria. Progress is checked using low stake assessment tasks these are built into starter or plenary sections of the lessons.</p> <p>The assignment for unit 3 requires students to work with a real business partner which allows students to develop their employability skills such as communication, organisation and initiative as they build a social media presence. During the project they will be responsible for contacting the business, building content and updating, monitoring posts throughout the agreed project period. The outcome will be documented in a report showing the impact that they have had and evaluating their own performance against the original aims of the project.</p>	<p>Pathways to a wide range of university courses.</p> <p>Opportunities for apprenticeships in the local area.</p>	<p>Autumn Term</p> <p>Unit 3 Assignment Aim A</p> <p>Unit 2 Phone book DB</p> <p>Spring Term</p> <p>Unit 2 _ Mock DB task</p> <p>Unit 2 – Active learn Aim B & C Assessment</p> <p>Unit 3 – Aim B & C Assignment</p> <p>Summer Term</p> <p>Unit 2 _ Active learn unit assessment 3</p> <p>Unit 2 – Bleach and Clean Database</p>

Impact: Students will be able to demonstrate knowledge of database terminology and concepts applying these to develop a database system that will meet the client needs. They will be able to use specialist software to create a secure data management solution using objects such as multiple tables, forms, queries and reports. They will be able to analyse information about database problems and data from test results to optimise the performance of a database solution and evaluate evidence to make informed judgements about the success of a database's design and performance. From unit 3 students will be able to research possible social media options for a business and develop a plan to meet their needs. Students will be confident to implement the plan, by creating social media accounts, reviewing and responding to outcomes, including feedback from customers appropriately.

The Big Picture—Intent: The second year of the BTEC course gives students the opportunity to learn advanced spreadsheet skills and how they can be used to solve problems. Building on their employability skills they will design and implement a solution to meet a client’s requirements. We aim to provide students with knowledge and understanding of the role of computer systems and the implications of both personal and professional use. They will explore the relationships between the hardware and software that form an IT system and the way that systems work individually and together, as well as the relationship between the user and the system.

**YEAR 13
BTEC IT**

Content / Units	Skills	Knowledge	Prior—Y12
Unit 1—Information technology systems Unit 5—Data modelling	Research and investigate and planning data models Advanced Excel functions and formatting tools, macros Reviewing and refining information system solutions Evaluating a solution to determine if fit for purpose.	Knowledge of IT terms, standards and concepts Make connections between application of technologies, procedures and outcomes. Understand the functions of a wide range of hardware Understand the functions of a wide range of software Knowledge of networks and their advantages and disadvantages Understanding the stages involved in the decision making process	Unit 2—Creating systems to manage Information Unit 3—Using social media in Business

Implementation	Marches Futures Links	Summative Assessment
<p>Students study 5 hours a week</p> <p>Lessons are blended in nature, some will be independent after following a demonstration the practical tasks for unit 5 (data modelling tools). Online resources (mostly videos that demonstrate the MS access skills) scaffold learning.</p> <p>Unit 1—delivery is mostly didactic in approach with PPTs and task worksheets being made available via the Teams platform. Past paper questions are used to assess progress, low stake assessments via quizzes, starters and plenary questions are usual. Group work tasks are used to allow discussion and decision making to take place.</p> <p>The assignment for unit 5 is more independent in nature MS Excel skills are taught using demonstrations and online videos and guides are used to scaffold. During the project they will receive constructive feedback (as in the professional world) and refine their solutions.</p> <p>The outcome will be documented in a report, guidance will be given and how to demonstrate their own behaviours and their impact on outcomes to include professionalism, etiquette, support of others, timely and appropriate leadership, accountability and individual responsibility.</p>	<p>Pathways to a wide range of university courses.</p> <p>Opportunities for apprenticeships in the local area.</p>	<p>Autumn term</p> <p>Unit 1—Digital devices Unit 1—transmitting data</p> <p>Spring term</p> <p>Unit 5—Aim A Unit 1—protecting data Unit 1—Impact of IT systems</p> <p>Summer term</p> <p>Unit 1—issues and ethics Unit 5—Aim B & C Unit 1—External exam</p>

Impact: Students will be able to analyse complex information, data and situations, in vocational contexts, in order to draw conclusions and make valid observations. They will be able to synthesise their knowledge and understanding of IT systems to deconstruct complex problems, drawing on various sources of information to develop effective solutions. Students will be able to evaluate the effectiveness of IT systems and make justified recommendations for further developments and future actions. They can make valid, justified judgements on the impact of IT on individuals, organisations and wider society. Students can provide evidence of designing and developing a data model for a specified scenario that meets client requirements. They will be able to justify how the decisions made and processes applied throughout the design, development and testing stages impact on the effectiveness of the final solution. Learners will be able to produce detailed designs for a data model that will include a range of alternative solutions.