

Computing

Curriculum principles

By the end of their all-through education, a student of computing at Dixons Trinity Chapeltown will:

- know the importance of computer science and the contribution emerging technologies can make in society. Students will know how to program using industry standard programming languages and how computers communicate internally and globally. Students will be able to communicate, with confidence, the effects of the technological and cultural divide facing society. Students will be taught the GCSE Computer Science curriculum to prepare them for A-Level studies in the subject and beyond. To enable them to thrive in a top job and have a great life.
- understand that we are now in a digital age. Computer scientists can theorise, design, develop and implement new programmes that have stance globally. Students at Dixons Trinity Chapeltown, will be exposed to a diverse curriculum that will effectively prepare them for further study at university and develop their cultural capital.

Our unifying 'sentence' is: "The Computing Department worked tirelessly to ensure all students were exposed to an exciting computing curriculum in order to contribute effectively towards the development of a technological society."

In order to achieve a true understanding of computing, topics have been intelligently sequenced based on the following rationale:

- the computing curriculum is built upon abstract skills, like algorithmic thinking, problem solving, and decomposition from Y1. Computer Science will have cross-curricular links to subjects such as: PE, science, mathematics and art and design.
- the curriculum has clear literacy links to embed key terminology, so children are speaking as computer scientists from a young age.
- the curriculum is designed to be spirals, in line with Bruner's spiral curriculum theory. Topics are covered, then revisited through low stakes quizzing throughout the cycle and then in future years. This ensures the forgetting is interrupted and revision occurs throughout school. Delivering the curriculum in this way allows for further, extensive teaching once the foundations are established.
- students of computing are introduced to GCSE computer science topics and vocational based skills throughout their studies from Y1. Students will use terminology correctly, such as 'algorithm' in primary computing lessons and understand the purpose of following instructions clearly which can then be applied to understanding how a computer processes these instructions as commands.

The computing curriculum will address social disadvantage by addressing gaps in students' knowledge and skills:

- there is no assumption from the department that students will have access to specialist hardware and software outside of school. As such, extra-curricular clubs will have access to technology should any student wish to continue learning about a specific topic. The laptops will have all required software. Interleaved revision at home will take place on the knowledge organisers and there is no requirement for students to have access to computer equipment at home to complete.
- students requiring additional support benefit from interleaving and frequent low stakes quizzing. This ensures intervention is proactive and data driven. On a regular basis, members of the computing department address the gaps identified from in-class or cycle assessment data to offer provision to eradicate these differences.
- students will also complete a computing project where they are to plan, design, create, test and evaluate a solution to a real-life problem. These projects will be filmed and shown to family members.
- students in upper peak are provided with a wealth of resources to reduce the 'digital divide' including revision guides, exam workbooks, flash cards, paper-based homework and mini-tests
- students in middle and upper peak have access to the computer suite before school, during their social time and after school

We fully believe computing can contribute to the personal development of students at DTC:

- valuable team-working skills will be developed by working together to debug and resolve issues in code. Students will learn programming through a driver-navigator method where each person has a responsibility for reading and writing code accurately. They will learn how to write code through an understanding that making mistakes is vital for our development and mistakes in code teach us different ways to solve the same problem. The computing curriculum requires resilience, especially in topics such as Python programming and this skill will help students throughout their time at school and beyond.
- students will learn how to decompose problems and think abstractly in order to develop problem solving skills, from Y1 throughout school, which will benefit them in all other lessons and throughout their career. The ability to decompose a problem, think abstractly and use logical reasoning to create a solution to a problem, will be developed in each computing lesson to ensure this skill is fully embedded.
- the computing curriculum offers the opportunity to investigate the legal implications of computing. Students will be able to give their opinions on matters affecting computing, like ethical hacking, data storage and targeted advertising. They will also be able to argue



on topics such as ethical, cultural and moral issues within computer science - investigating the environmental impact of technology development and recycling of materials.

At Middle Peak and Upper Peak, our belief is that homework should be interleaved revision of powerful knowledge that has been modelled and taught in lessons. This knowledge is recalled and applied through a range of low stakes quizzing and practice.

Opportunities are built in to make links to the world of work to enhance the careers, advice, and guidance that students are exposed to:

- the computing curriculum provides students with opportunities to consider the world of work and how the development of IT and computational skills lead to successful careers. The SoW refers to how the skill in question relates to specific careers in a 'careers spotlight'.
- students will be able to put their knowledge of computer science into practice during expeditions to universities in Y9 and Y10 where they will meet undergraduates studying in the field and preparing to begin a career in computing. Further expeditions to workplaces within Leeds will show students how the city is contributing to the development of new technology in Leeds.
- the curriculum provides multiple career opportunities for students. They will investigate the wealth of careers available in the field of computer Science from Y2 and as they progress through the academy, they will be shown real-life examples of careers and see first-hand the requirements of roles and the types of responsibilities computer scientists have.
- evident links to careers are made cross-phase from base camp fluidly up until Year 11. These links are signposted in the LTP, SOW and directly into the E-Work booklets completed by students

A true love of computing involves learning about various cultural domains. We teach beyond the specification requirements, but do ensure students are well prepared to be successful in GCSE examinations:

- the Computing Department also run co-curricular electives in robotics, and the Duke of York iDEA award, so students are able to put their programming skills into contextualised practice, to instil a love of computing-based subjects.
- students will cover large topics like the three constructs (abstraction, decomposition and computational thinking) through play-based learning in Y1 and more academic lessons from KS2. Students will be taught algorithmic practice from Y1, in the form of following specific instructions and understanding how a computer processes these instructions. The GCSE Computer Science specification, alongside the National Curriculum for Computing, underpins the entire scheme from early years through to GCSE and topics are intelligently sequenced and revisited.
- enrichment opportunities are diverse and include: robotics, animation, the iDEA award and digital journalism
- the computing digital ambassadorship responsibility ensures students are actively supporting younger students to be successful. The program includes a peer mentorship element where students studying computing in the upper peak will develop provision for students in lower peak

Further information

- All through curriculum overview
- Long term plans
- Knowledge organisers



Curriculum Overview

All children are entitled to a curriculum and to the powerful knowledge that will open doors and maximise their life chances. Below is a high-level overview of the critical knowledge children will learn in this particular subject, at each key stage from Reception through to Year 11, in order to equip students with the cultural capital they need to succeed in life. The curriculum is planned vertically and horizontally giving thought to the optimum knowledge sequence for building secure schema.

		Knowledge; skills and understanding to be gained at each stage*		
		Cycle 1	Cycle 2	Cycle 3
EYFS	Know and remember	Play interactive games using technology; cause and effect; toys that wind / buttons / movement / sound books	Programming – use Bee-Bots to start to understand sequencing	Know that a range of technology is used in places such as homes and schools. Select and use technology for different purposes
	Do	Enabling Environments: playing with a range of materials and objects that work in different ways for different purposes; playing with a range of programmable toys and equipment including computers; using search engines to research; using telephones for communication; use the Paint programme within the creative area		
	e- safety	Feeling safe online; adult supervision and how to ask for support and permission		
YEAR 1	Know and remember	Safe use of technology Logging on, use of a trackpad/mouse. Opening and closing programs, keeping password and username safe. Dragging, copying, pasting, left-click, right-click Use of technology Technology outside of school (self-service checkouts / ticket machines); impact to society. How technology is used within education, hospitals, retail	Personal Information How to keep safe online. Investigating which information can be shared and which needs to be kept private. Researching personal information and offering advice on how to protect data Careers in ICT / Computing Common careers in the field and routes to get there. Personal project researching careers and using software to present findings	Algorithms Importance of clear instructions within a computer system Scratch Directional programming in a block-based environment. Decomposition, abstraction and iteration Micro:Bit Block-based coding using the online platform that is downloaded onto the physical devices
	ICT skills	Typing, saving, editing, undo and redo, select and format text		
	e- safety	Keeping safe online; searching for images; personal information; owning your creative work		
	NCC aims	1D	1A, 1B, 1C	1A, 1B, 1E
	Vertical and horizontal interleaving	Links to e-safety throughout the curriculum each year	E-safety – how to ask for support, built upon to understand how to report concerning content	Foundation skills to be built on in subsequent years / cycles
	Know and remember	Safe use of technology Recapping how to use PC equipment safely and responsibly Internet explorer Developing independent internet research skills – on the topic of e-safety	Algorithm prediction Tracing pre-designed algorithms in order to predict their outcomes Using patterns and logic to solve problems	Creating digital content Creative freedom to produce a web blog, digital graphic or video surrounding algorithms. Enhancing the aesthetics and creating folders for organisation
ICT skills	Create a folder; new slide; new layout; add and format images; reorder slides; search and print			
e- safety	Digital footprints; using technology safely and respectfully; keeping personal information private; being kind online			
NCC aims	1A, 1B, 1C	1A	1D, 1F, 1E	
Vertical and horizontal interleaving	Word processing and computer skills (Y1) Geography – Interactive maps (C1 Y2)	Algorithms (Y1), directional programming in a block based environment	Safe use of a computer (Y1) Computer skills (typing, formatting, editing images) (Y1)	
YEAR 3	Know and remember	Physical systems Creating working systems with hardware or through online software Designing, writing and debugging algorithms What are algorithms and how do we write them? Use of flowchart shapes to create solution; coding in scratch	Decomposition Investigating how to break down a large problem into smaller, independent programs Abstraction Removal of the non-essential data so as to focus on important elements	Sequence, selection, iteration Using options within their programs and investigate the best way to structure code Use of loops and evaluate the effectiveness on the efficiency



		Knowledge; skills and understanding to be gained at each stage*		
		Cycle 1	Cycle 2	Cycle 3
YEAR 3	ICT skills	Case change; align text; bullets and numbering; keyboard shortcuts; text boxes and text wrapping		
	e- safety	e-mails; online communications; cyber bullying		
	NCC aims	2A, 2B	1A, 2A	2B
	Vertical and horizontal interleaving	Cyber bullying in PDS (Y2 C1) Computer skills and word processing (Y1 / Y2) Creating digital content (Y2 C3)	Algorithms (Y1-2), directional programming in a block based environment	Algorithms (Y1-2), directional programming in a block based environment
YEAR 4	Know and remember	Networks and the internet Explore how data is transferred across a network and investigate the differences between the internet and the World Wide Web	Input and output systems Research different devices and their purpose within a computer Storage devices Students will investigate how data is stored on a computer system and research both primary and secondary storage methods	Memory Explore how data is stored in binary and how devices communicate within a computerized system Coding Block based coding (scratch / Kodu) using IF / THEN statements
	ICT skills	Format images; layout; spell check; tables; hyperlinks		
	e- safety	Plagiarism; using search engines; being a good online citizen and how to deal with cyberbullying		
	NCC aims	1E, 2A, 2B	2E, 2F, 2G	2A, 2B, 2C
YEAR 5	Vertical and horizontal interleaving	Cyber-bullying (Y3) Word processing (Y1-3) Networking (Y3)	Computer skills and word processing (Y1 / Y2)	Algorithms (Y1-3), directional programming in a block based environment.
	Know and remember	Debugging Investigating errors in code and writing solutions Networking LAN, MAN, WAN, peer to peer networks How devices communicate in a network	Internet Explore the WWW and internet as a collection of web pages Communication and collaboration Investigate how devices can be used as a communication and collaboration tool	Analysing digital content Assessing against a brief and identifying improvements
	e- safety	Spam e-mails; citing sources; safe passwords; fake images; investigating methods of keeping information safe; using websites correctly and reporting concerns		
	NCC aims	1E, 2D	2D, 2E, 1E	2E, 2F, 2G
YEAR 6	Vertical and horizontal interleaving	Networking (Y3 C2) Algorithms (Y1, Y2)	Emails (Y3 C1)	Use of software to create content (Y3 C1)
	Know and remember	Sensible use of technology Exploring ways to use websites safely Software for presenting Use of PowerPoint and Publisher to produce presentational pieces	Producing digital content Reviewing online content and creating own web blog / website Games design Producing own games in Scratch / alternative block-based coding	Games development Producing games in scratch using variables, iteration, sequence and selection Testing and evaluation Writing accurate tests to assess the functionality of developed game Recommendations for future development
	e- safety	Internet is media which forms stereotypes		
	NCC aims	1E, 2E, 2F, 2G	2C, 2B	2A, 2B, 2G, 2F, 1C, 1G
YEAR 6	Vertical and horizontal interleaving	Presenting (Y2 C1) PSHCE – In the media and stereotypes (Y5 C1)	PSHCE – Playing online games safely (Y4 C2) Safe use of the PC (Y1 C2)	Algorithms (Y1-5), directional programming in a block based environment.



		Knowledge; skills and understanding to be gained at each stage*		
		Cycle 1	Cycle 2	Cycle 3
YEAR 7	Know and remember	Digital literacy and e-safety Recognise reliable information sources and list way to keep safe online Binary Converting from binary to denary and visa versa Performing binary addition and explaining the overflow error	Algorithms Importance of writing clear instructions Computational thinking Thinking like a computer in order to solve a problem	Python programming Writing programs in Python using sequence, selection and iteration Hardware and software Investigate the hardware needed to build a PC system and the software that runs on top
	NCC aims	3I, 3H, 3G, 3E	3A	3C, 3F
	Skills revisited	Builds upon knowledge of how to keep oneself safe on computer devices and place value in binary	Builds upon algorithmic thinking practice skills taught in lower and middle peak	Builds upon computational thinking and algorithmic practice. Scratch programming skills revisited
	CEIAG	Careers in mathematics and data analysis (Topic 2: binary)	Careers in software development (Topic 3: Algorithms / Topic 4: Computational Thinking)	Careers in programming (Topic 5: Python Programming)
YEAR 8	Know and remember	Animation creating moving imagery through shape, class and motion tweens. Investigate the history of animation	Hardware and Software Investigating the physical components of a computer system and the applications run on top of this.	Python programming Introduction to programming using block and object-orientated language, using the PRIMM methodology
	NCC aims	3E, 3I	3F, 3D	3G, 3H, 3E
	Skills revisited	New topic, will use key close reading skills and Teams to support – but knowledge is new	Builds upon the knowledge of hardware and software required to build and secure a computer	Builds upon python programming skills developed in middle peak and links to algorithmic practice and computational theory
	CEIAG	Careers in Cyber Security (Topic 1: E-Safety)	Careers in Game/Software Design (Topic 2: Hardware and Software)	Careers in Programming (Topic 3: Programming)
YEAR 9	Core	Duke of York IDEA award Students complete Information Technology challenges to earn points towards badges, iDEA is the digital and enterprise equivalent of the Duke of Edinburgh award. Bronze, Silver and Gold award. Challenge elements include: citizen, worker, maker and entrepreneur for Bronze award. Challenges relate to E-Safety, Digital Literacy, Cloud-based systems and storage, cyber security, networking, social media ethics, big data, internet of things, user interfaces and experiences, design psychology, automation, virtual reality, video editing, coding, research and problem solving and more. The iDEA award links to the national curriculum for computing and covers concepts such as programming through the creation and evaluation of computational abstractions in the programming modules and use of more than one programming language. In the iDEA award, students use javascript, python and SQL to interpret, correct and create code. Students will learn to work with Boolean logic during the binary module and during the user interface and sys admin, students will learn how hardware and software communicate.		
	NCC aims	3B, 3D, 3I, 3C, 1E, 3G, 3F, 3A		
	CEIAG	Careers in mechanical engineering, programming, software development and technical support.		
	Examination	1.1 Systems Architecture Components of the PC and their functionality. FDE Cycle and Von Nuemann architecture 1.2 Memory and Storage Primary and secondary storage, data capacity calculations, binary representation, compression 1.3 Networks, connections and protocols How devices communicate across a network, the internet, the world wide web, rules for transmission 1.4 Network security Protecting the network against internal and external threats	1.5 Systems software Investigate the hardware needed to build a PC system and the software that runs on top 1.6 Ethical, legal, cultural and Environmental impacts Analysing the impacts of computing technology on the wider community 2.1 Algorithms Pseudocode and flowcharts used to create algorithms 2.2 Programming fundamentals Representation of algorithms, defensive design considerations	2.3 Producing robust programs Writing in Python using variables, inputs processes and outputs 2.4 Boolean Logic Logic gates, truth tables and combining gates to produce logic diagrams 2.5 Programming languages Using a compiler and an interpreter to produce programs



		Knowledge; skills and understanding to be gained at each stage*		
		Cycle 1	Cycle 2	Cycle 3
YEAR 9	NCC aims	3E, 3I	3E, 3I	3A, 3C
	Skills revisited	Builds upon the knowledge of hardware and software and how to be safe, and protect a computer device	Builds upon the Python and Scratch programming languages developed in middle and lower peak, alongside hardware within a computing device	Builds upon knowledge of numbering systems and place value. Links to Scratch block-based programming and pythonic language
	CEIAG	Careers in animation design (Topic 1-3: animation)	Careers in Systems Analysis (Topic 2 memory and topic 3 Operating Systems)	Careers in Multimedia programming (Topic 4/5/6: Programming)
YEAR 10	Creative Media Production	Unit 1 – Exploring media products Investigating the impact of media and how media has progressed through the years. Explore how media can be used for a variety of purpose and the varieties of audience. (This unit will be completed in Cycle 2)		
	OCR GCSE Computer Science	Component 1 – systems architecture Memory; storage; wired and wireless networks; network topologies; protocols and layers; system security; system software; ethical, legal, cultural and environmental concerns	Component 2 – algorithms and programming Algorithms; programming techniques; producing robust programs; computational logic; translators and facilities of languages; data representation	Component 3 – project / exam prep Programming techniques; analysis; design; development; testing, evaluation and conclusions
	Skills revisited	Builds upon knowledge of primary and secondary storage and compatibility of technical components within a computer	Builds upon knowledge of programming in text-based and high-level programming languages. Links to machine code taught in middle peak	Builds upon knowledge of sequencing, selection and iteration alongside the software design lifecycle
	CEIAG	Careers in Technical Writing (Topic 1: Systems Architecture)	Careers in Multimedia (LO1- LO4) Careers in software development (Component 2)	Careers in Website Design (LO1- LO4)
YEAR 11	OCR GCSE Computer Science	Component 1 Systems architecture; recap of systems architecture; memory; storage; wired and wireless networks; network topologies; protocols and layers; system security; system software; ethical, legal, cultural and environmental concerns	Component 2 Algorithms and programming Producing robust programs; computational logic; translators and facilities of languages; data representation	
	CEIAG	Careers in Network Security (Component 1)	Careers in Programming (Component 2)	

*A powerful, knowledge-rich curriculum teaches both **substantive knowledge** (facts; knowing that something is the case; what we think about) and non-declarative or **procedural knowledge** (skills and processes; knowing how to do something; what we think with). There are no skills without bodies of knowledge to underpin them. In some subjects, a further distinction can be made between substantive knowledge (the domain specific knowledge accrued e.g. knowledge of the past) and disciplinary knowledge (how the knowledge is accrued e.g. historical reasoning). Please refer to the DAT Curriculum Principles, published on our website, for further information about how we have designed our all-through curriculum.



Year 1 Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	Induction									Planning days	Y8 expedition		
	Logging on How to log on to a computer. Typing in our usernames and passwords	Use of trackpad/mouse Clicking, dragging, selecting, left and right options	Opening, Closing and minimizing programs How to use the mouse to open and close documents	Copying/Pasting How to add images from the internet using keyboard shortcuts	Left and Right Click Using the mouse correctly to locate information and use the menus	Word skills typing and font alterations in Microsoft Word	Technology Investigating technology outside of school	Self Service machines How technology helps us complete tasks	Technology in schools How do our teachers use technology to help us	Technology in hospitals How are computers used in the health industry	Microsoft Word Using Word to alter incorrect spellings	Microsoft Excel Using Spreadsheets to calculate	Review Recap of taught content - typing game
Cycle 2							Cycle assessment weeks		Data input		Y7 expedition		
	Algorithms What an algorithm is	Algorithms Creating algorithms in flowcharts	Algorithms Sequencing in flowchart	Algorithms Writing algorithms in pseudocode	Algorithms Recap – flowchart shapes. Create own flowcharts using flowgorithm	Algorithms Loops in pseudocode – while loop	Careers What is a career?	Careers in computing What careers are available and what do they do?	Careers What do Computer Scientists do?	Careers What skills do you need to work in the field of computing?	Careers Software to present – PowerPoint	Careers Software to present – PowerPoint (Animations and transitions)	Careers Software to present – PowerPoint (Animations and transitions)
Cycle 3									Cycle assessment weeks		Y9 expedition		Recognition
	Algorithms What is an algorithm?	Algorithms The importance of giving clear instructions	Algorithms Iteration in algorithms	Algorithms Sequence in an algorithm	Algorithms Selection in an algorithm	Algorithms Using scratch to create algorithms	Micro:bit Use of the website, block based coding challenge		Micro:bit Connecting the Micro:bit to the computer using the USB cable Creating and downloading programs onto the device Strings, inputs and outputs Review				



Year 2 Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	Induction									Planning days	Y8 expedition		
	Logging on How to log on to a computer. Typing in our usernames and passwords	Use of trackpad/mouse Clicking, dragging, selecting, left and right options	Opening, Closing and minimizing programs How to use the mouse to open and close documents	Internet What is the internet?	Search engines What is a search engine and how do they work?	Websites Use a search engine to find relevant websites	Useful content Use search engines to find appropriate images for report	Use of software Organize research into a report	Include content Update PowerPoint to include E-Safety information			Include content Save and insert relevant images	Top tips Write recommendations for others
Cycle 2						Cycle assessment weeks			Data input		Y7 expedition		
	Iteration in Scratch Count controlled loops in Scratch	Creating shapes Using iteration in scratch to produce shapes	Pattern recognition Identifying repeated code	Logic errors Finding and resolving logical errors in code	Sequencing Trace through a flowchart and rearrange in the correct order	Loops Count controlled loops in Scratch	Loops Condition controlled loops in Scratch	Tracing algorithms What is happening in the algorithm?	Algorithm prediction What happens when we alter sections of the same algorithm	Testing and debugging Knowing how to find and resolve errors in own code	Autonomous Programming Either using tutorials, success criteria or game ideas produce own code using sequence, selection and iteration.		
Cycle 3									Cycle assessment weeks		Y9 expedition		Recognition
	Online software An introduction to the software types online and their capabilities	PowerPoint online Creating, editing, renaming and adding content	Word online Creating, editing, renaming and adding content	Forms online Creating, editing, renaming and adding content	Storyboarding online Creating, editing, renaming and adding content	Web Blog Creating, editing, renaming and adding content	Planning digital content Deciding on software to use, choosing topic, finding information and content.	Creating own digital content Using the software to produce own online portfolio with multimedia objects.			Editing and presenting Altering the aesthetics, fonts, images, transitions, animations and effects		



Year 3 Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	Induction									Planning days	Y8 expedition		
	Networks What is a network?	Communication How do computers communicate on a network?	LAN/WAN What are local and wide area networks	Topologies – Bus and ring How networks are designed and how this effects resources	Topologies – Star and Mesh How networks are designed and how this effects resources	Sending data Moving a data packet across a network to an intended recipient	What are algorithms Investigating the differences between pseudocode and flowcharts	How do we write algorithms? Listing instructions sequentially or as a diagram	Pseudocode Producing a step by step algorithm in a language-independent manner	Flowchart Shapes (Terminator and parallelogram) Producing algorithms in a graphical manner Flowchart Shapes (Decision and rectangle) Producing algorithms in a graphical manner		Coding from flowcharts Producing code within scratch from designed flowcharts	
Cycle 2							Cycle assessment weeks		Data input		Y7 expedition		
	Decomposition How to break down problems into more manageable sections	Decomposition Producing decomposed algorithms – brushing teeth	Decomposition decomposition diagram for brushing teeth algorithm	Decomposition Designing a flowchart for each task within the brushing teeth algorithm	Decomposition Producing decomposed algorithms – family dining	Decomposition decomposition diagram for family dining algorithm	Abstraction Removing data that is not needed	Pattern recognition Identifying similarities	Abstracting data Considering the elements that can be safely removed	Writing abstracted algorithms Producing the code required, ignoring the nor-essential elements	Pirate map creation (using abstraction) Creating pirate treasure maps after removing the unnecessary information.		
Cycle 3									Cycle assessment weeks		Y9 expedition		Recognition
	Sequence Why is order important? How does it influence our code?	Selection How to use user input to creative interactive programs	Iteration How loops can be created in code to repeat elements	Sequence Re-arrange the instructions in a flowchart so the program is no longer nonsensical	Selection Store and reply to user input in code	Iteration Produce times tables in code using count controlled loops	Programming project Creating autonomous projects using Scratch/Micro: bit incorporating sequence, selection and iteration						



Year 4 Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	Induction									Planning days	Y8 expedition		
	Connecting networks reasons for connecting	protecting networks How to prevent unwanted access	Internet Purpose of a router / packet routes	World wide web visit and analyse websites	Sharing information How does a video get from the US to the UK?	How to access the WWW tools / software required for access	What is a website? List features of webpages	Creating content Create music using the WWW	The internet Who owns the content on the web?	Reliability of content Can we trust everything we find on the internet?	How is content shared? Can we trace where the information came from?	Summative assessment questions relating to the WWW and content	Summative review Designing a new GUI for a user
Cycle 2							Cycle assessment weeks		Data input		Y7 expedition		
	Sourcing and storing Finding suitable (copyright free) images on the internet and storing for future use	Editing images Adding effects to existing images		Composition how the layout of digital imagery affects the meaning	Altering purpose changing images to make them suitable for different purposes		Creating own images Creating and editing own images to use in publication			Making and evaluating a publication Using created / edited images to produce an informative poster (cross curricular links) peer assessment, review and re-draft			
Cycle 3									Cycle assessment weeks		Y9 expedition		Recognition
	Data What is data and what are the different types of data?	Collecting data deciding on meaningful questions for a survey	Collecting data carry out survey	Manipulating data using excel to create graphs / charts	Data analysis What does the data show us?	Hypothesise Plan a question to be answered using data	Collect data using primary and secondary sources to collect data in support of the question		Manipulating data using excel to create graphs / charts in support of the question	Data analysis What does the data show us? – does this data support / reject the question	Data report Present question, how the data was obtained, what the data shows and whether the data has answered the question. Team challenge		



Year 7 Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	Induction									Planning days	Y8 expedition		
	Induction GL assessments Office 365 Login and familiarisation	E-safety E-safety L1 – Content Personal Information	E-safety L2 – Content misuse of information E-safety L3 - Content Identifying reliable sources of information	E-safety L4 - Content analysing 'fake news' E-safety L5 – Conduct Email etiquette	E-safety L6 – Conduct cyberbullying case studies Messy marking E-safety L7 – Conduct Digital footprint Case studies	E-safety L8 – Conduct Positive platform promotion E-safety L9 – Conduct Reporting concerns. Privacy settings and blocking	E-safety L10 – Contact Legal implications: creating and sharing E-safety L11 – Contact Copyright law	E-safety L12– Contact Intellectual property and defamation of character Review E-safety	Binary 1s and 0s - purpose Binary Numbering systems – binary and denary	Binary 2-bit denary conversions Binary 4 & 8 bit binary conversions	Binary Extended writing 1 Messy marking Binary Image representation	Binary sound representation Binary text representation	Binary addition Binary Binary - hex Extended writing two
Cycle 2	Cycle assessment weeks								Data input		Y7 expedition		
	Algorithms What an algorithm is Algorithms Flowchart shapes	Algorithms Creating algorithms in flowcharts Algorithms Correcting algorithms in flowchart	Algorithms Sequencing in flowchart Algorithms Introduction to pseudocode	Algorithms Writing algorithms in pseudocode Algorithms Correcting pseudocode Messy marking	Algorithms Loops in Scratch– repeat loop Algorithms Gap closing	Algorithms Loops in pseudocode – while loop Algorithms Building algorithms from code - flowchart	Algorithms Building algorithms from code - pseudocode	Algorithms Computational thinking Abstraction	Computational thinking abstraction Computational thinking abstraction	Computational thinking Decomposition Review Cycle 1 and 2	Computational thinking Decomposition Computational thinking Decomposition diagram	Computational thinking Technology in the wider world - education Computational thinking Technology in the wider world	Computational thinking Technology in the wider world - automotive Computational thinking Solutions to real world problems
Cycle 3	Cycle assessment weeks								Y9 expedition		Recognition		
	Programming Syntax Programming Errors in code	Programming PRIMM introduction Programming Chatbot - extended	Programming Driver / navigator For loops Programming Driver / navigator	Programming selection Programming sequence Messy marking	Programming iteration Programming Scratch iteration	Programming Python iteration Programming Independent programming.	Programming Iteration in turtle Programming Independent programming.	Hardware and software Input Devices Hardware and software Purpose of hardware	Hardware and software List devices needed to create a PC Hardware and software Output devices	Hardware and software Storage devices Hardware and software Recommend hardware for given scenarios	Cycle 1,2,3 Assessment Cycle 1,2,3	Hardware and software Purpose of Hard drive, SSD, Flash Hardware and software Role of the CPU in a computer system	Hardware and software Computer operating systems Hardware and software Operating systems for mobile



Year 8 Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	Induction									Planning days	Y8 expedition		
	Introduction – teams / do now	Animation basics (stage, FPS, tools, properties, layers)	Frame by Frame	Use of tweens (classic)	Use of tweens (shape)	Animating text	Use of layers	assessment	storyboarding	Creating scenes – scene 1,2,3		Review and evaluate messy marking	Suggest improvements
Cycle 2							Cycle assessment weeks		Data input		Y7 expedition		
	Induction baseline assessment	media consumption	A creator's responsibilities	Safe online talk	Which me should I be? messy marking	Gender stereotypes online	Revision	Assessment	Digital footprint	Cyberbullying: crossing the line	The reality of digital drama	Identifying high-quality sites	Advice report
Cycle 3									Cycle assessment weeks		Y9 expedition		Recognition
	Introduction to programming and PRIMM recap	Scratch programming	Algorithm analysis Messy marking	Python programming	Sorting algorithms: Insertion	Sorting algorithms: bubble	Sorting algorithms: merge	Searching algorithms: binary	Searching algorithms: linear Messy marking	Logic gates	Boolean logic	Review Hardware and software	Review Hardware and software



Year 9 Long Term Plan (BTEC)

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	Induction									Planning days	Y8 expedition		
	Induction Course introduction	Audience (age, gender and ethnicity)	Purpose and audience	Target audience comparison	How media has transformed over the years Dr Who Ghostbusters	Genre characteristics	Assignment practice – publishing (present)	Assignment practice – audio/moving image (present)	Assignment practice – interactive (present)	Assignment brief analysis	Assignment – Paragraphs 3 & 4 Messy marking	Assignment – Paragraphs 5 and 6	Assignment – Paragraph 7 Messy marking
	Audience profiling	Media consumption purposes	Lifestyle profiles	Research task – radio advertising	Messy marking	Assignment practice – publishing (past)	Assignment practice – audio/moving image (past)	Assignment practice – interactive (past)	Feedback and review	Assignment – Paragraphs 1 & 2	Assignment – feedback 1-4		Assignment – feedback 5,6,7
Cycle 2						Cycle assessment weeks			Data input		Y7 expedition		
	Assignment – Paragraphs 8 and 9	Assignment – Paragraph 10 Messy marking	Assignment – Paragraphs 11,12 and 13 Messy marking		Assignment – feedback 11,12,13	Assignment – Paragraphs 15 and 16 Messy marking	Assignment – feedback 14,15,16	Assignment – Paragraphs 18 and 19 Messy marking	Review	Assignment – feedback 17,18,19	Assignment – Paragraph 21 Messy marking	Conclusion	Assignment – feedback
		Assignment – feedback 8,9,10			Assignment – Paragraph 14		Assignment – Paragraph 17		Assessment	Assignment – Paragraph 20	Assignment – feedback 21 and 21		Final hand-in
Cycle 3									Cycle assessment weeks		Y9 expedition		Recognition
	Genre (page76)	Representation (75/76)	Connotations and denotation	Media production techniques – mise en scene	Media production techniques – framing shot	Media production techniques – editing list (102) Media production assignment	Media production techniques – interactivity (workshop)	Learning Aim B practice assignment	Learning aim B Assignment				
	Narrative (page 80)	audience interpretation (81)	Genre, representation and audience response assignment (page 87)	Media production techniques – camera angles	Media production techniques – lighting (page97)	Media production techniques – photo editing (Workshop)	Media production techniques – game features (workshop)						

Year 9 Long Term Plan (GCSE)

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	
Cycle 1	Induction										Planning days	Y8 expedition		
	Student Induction Creation of folders for all units Student Induction Demonstration of Cornell notes taking method and online resources	1.1 Systems Architecture Fetch-execute cycle 1.1 Systems Architecture CPU Components ALU, cache, registers, CU	1.1 Systems Architecture Von Neumann architecture (MAR, MDR, PC and ACC) 1.1 Systems Architecture Common characteristics (cache, clock, cores)	1.1 Systems Architecture Embedded systems 1.2 Memory and Storage Primary and secondary storage	1.1 Systems Architecture Embedded systems 1.2 Memory and Storage Binary conversions, additions and shifts	1.2 Memory and Storage data capacity calculations and storage units 1.2 Memory and Storage Binary conversions, additions and shifts	1.2 Memory and Storage Binary: characters, images and sound 1.1 and 1.2	1.2 Memory and Storage Compression: lossy and lossless 1.3 Computer networks Types of network (LAN and WAN)	Revision 1.1, 1.2 and Year8 content Assessment Cumulative of yr7, yr8 and cycle 1 yr9	1.3 Computer networks, connections and protocols Network hardware and the role of client/server/peer networks	1.3 Computer networks, connections and protocols Encryption 3 Computer networks, connections and protocols Protocols and layers	1.4 Network Security Forms of attack (first 3 in the spec) 1.4 Network Security Forms of attack (next 3 in the spec)	1.4 Network Security Prevention methods (first 4 in the spec) 1.4 Network Security Prevention methods (last 3 in the spec)	1.4 Network Security Offer guidance to users of the network from the perspective of network administrator Review 1.1, 1.2, 1.3 and 1.4
Cycle 2							Cycle assessment weeks		Data input			Y7 expedition		
	1.5 Systems Software Operating Systems 1.5 Systems Software Functions of an OS	1.5 Systems Software Utility software - purpose 1.5 Systems Software Encryption software	1.5 Systems Software Defragmentation Review 1.4 – 1.5	1.6 Ethical, legal, cultural and environmental impacts of digital technology Impacts of digital technology	1.6 Ethical, legal, cultural and environmental impacts of digital technology Legal impact and legislation	1.6 Ethical, legal, cultural and environmental impacts of digital technology Environmental Revision 1.1 – 1.4	Revision 1.5 and 1.6 Assessment Cycle 1 & Cycle 2 content	2.1 Algorithms Abstraction, decomposition and algorithmic thinking 2.1 Algorithms input, processes and outputs for a problem	2.1 Algorithms Pseudocode and flowcharts 2.1 Algorithms Searching algorithms	2.1 Algorithms Sorting algorithms 2.2 Programming fundamentals String manipulation	2.2 Programming fundamentals File handling operations 2.2 Programming fundamentals Data types	2.2 Programming fundamentals sequence, selection and iteration 2.2 Programming fundamentals functions and procedures	2.3 Producing robust programs Defensive design considerations 2.3 Producing robust programs input validation	
Cycle 3							Cycle assessment weeks				Y9 expedition		Recognition	
	2.3 Producing robust programs Maintainability 2.3 Producing robust programs Selecting and using suitable test data Review 2.1 – 2.3	2.3 Producing robust programs Selecting and using suitable test data Review 2.1 – 2.3	2.4 Boolean Logic Logic gates AND/OR/NOT 2.4 Boolean Logic Logic gates AND/OR/NOT	2.4 Boolean Logic Truth tables 2.4 Boolean Logic Combining gates	2.4 Boolean Logic Editing logic diagrams Review 1.1	2.5 Programming languages and IDEs High level languages 2.5 Programming languages and IDEs Low level languages	2.5 Programming languages and IDEs Translators 2.5 Programming languages and IDEs Compiler and interpreter	2.5 Programming languages and IDEs IDE tools and techniques Assessment Cycle 1, Cycle 2 & Cycle 3 content	Exam practice Exploding 2 mark exam questions. Exam practice Exploding 4 mark exam question	Exam practice Exploding 5 mark exam questions Exam practice Exploding 6 mark exam questions	Exam practice Exploding 8/9 mark exam questions Exam practice Exploding 8/9 mark exam questions	Craig n Dave Gap closing using online resources and tailored questioning Gap closing	Exam paper practice Full exam paper in test conditions Marking assessment	



Year 10 Long Term Plan (BTEC)

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	Induction									Planning days	Y8 expedition		
	Course refresher and baseline test	Recap of programming fundamentals	data types in Python	file handling operations – read/write	Project analysis and selection	Project design (flowchart)	Produce IPOD and testing table	Produce own fully commented coded solution	test program using suitable test data	Analyse project – what improvements would you make?	LAN & WAN	Network topologies	Disadvantages of network topologies
	Student Induction Demonstration of Cornell notes taking method and online resources	Comp3 string manipulation	Comp3 file handling operation – open/ close/ append	Comp3 arrays and list	Comp3 Analysis of the project brief	Comp3 project pseudocode	Comp3 analyse given coded solution	Assessment Cumulative of yr7, yr8 and cycle 1 yr9	Comp3 Analyse project – what went well	Component 2 Introduction to networking	Component 2 Network hardware	Component 2 advantages of topologies	Component 2 exam question practice
Cycle 2							Cycle assessment weeks		Data input		Y7 expedition		
	Hardware in a standalone network	The internet	Concept of servers providing services	Modes of connection (wired and wireless)	IP addressing and Mac addressing	Common protocols (TCP/IP, HTTP, HTTPS)	the concept of layers	Forms of attack (Malware, Social engineering and brute-force)	Common prevention methods including: penetration testing, anti-malware software, firewalls, user access levels, passwords, encryption, physical security	Abstraction	Algorithmic thinking	How are they used to define and refine principles	
	Role of the NIC	DNS	The cloud	encryption	Standards	Common protocols (FTP, POP/IMAP/SMT P)	The 4-layer TCP/IP model	Forms of attack (DOS, data interception, SQL injection)		Decomposition		Map creation	
Cycle 3									Cycle assessment weeks	Y9 expedition		Recognition	
	Reflect on development	Review production practices	Annotate examples of practical work	Suggest areas for improvements	Explain the skills developed during the pre-production stage	Explain the skills developed during the production stage	Explain the skills developed during the post-production stage	Assessment feedback and improvements					
	Reflect on application of skills	Document all progress from workshops	Assess strengths	Produce skills audit									

Year 10 Long Term Plan (GCSE)

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	Induction									Planning days	Y8 expedition		
	Course refresher and baseline test	Recap of programming fundamentals	data types in Python	file handling operations – read/write	Project analysis and selection	Project design (flowchart)	Produce IPOD and testing table	Produce own fully commented coded solution	test program using suitable test data	Analyse project – what improvements would you make?	LAN & WAN	Network topologies	Disadvantages of network topologies
	Student Induction Demonstration of Cornell notes taking method and online resources	Comp3 string manipulation	Comp3 file handling operation – open/ close/ append	Comp3 arrays and list	Comp3 Analysis of the project brief	Comp3 project pseudocode	Comp3 analyse given coded solution	Assessment Cumulative of yr7,yr8 and cycle 1 yr9	Comp3 Analyse project – what went well	Component 2 Introduction to networking	Component 2 Network hardware	Component 2 advantages of topologies	Component 2 exam question practice
Cycle 2							Cycle assessment weeks		Data input		Y7 expedition		
	Hardware in a standalone network	The internet	Concept of servers providing services	Modes of connection (wired and wireless)	IP addressing and Mac addressing	Common protocols (TCP/IP, HTTP, HTTPS)	the concept of layers	Forms of attack (Malware, Social engineering and brute-force)	Hardware in a standalone network	The internet	Concept of servers providing services	Modes of connection (wired and wireless)	IP addressing and Mac addressing
	Role of the NIC	DNS	The cloud	encryption	Standards	Common protocols (FTP, POP/IMAP/SMTP)	The 4-layer TCP/IP model	Forms of attack (DOS, data interception, SQL injection)	Role of the NIC	DNS	The cloud	encryption	Standards
Cycle 3									Cycle assessment weeks		Y9 expedition		Recognition
	Inputs, process and outputs for a problem	structure diagrams - decomposition	pseudocode – OCR reference language	creating algorithms using flowcharts	creating algorithms using pseudocode	identify syntax / logic errors in flowcharts	binary search	merge sort	Sorting algorithm flowchart	-	sorting algorithm - pseudocode	exam question practice	
			algorithm for bubble sort - pseudocode				identify syntax / logic errors in flowcharts	linear search					bubble sort

