Long Term Plan KS3 IT - Year 9

Half term	Unit title	Key knowledge/ Content to learn and retain	Essential skills to acquire (subject & generic)	Link to subject ethos and driver	Anticipated misconceptions	Links to previous KS	Links to future KS	Opportunity for stretch for high prior attainers	SMSC & British Values	Cultural Capital	Career Link
HT1 05.09.22 - 21.10.22 7 weeks	Privacy and Security	The difference between data and information. Minimising the risk of data being compromised. Hacking. Malware. Protecting networks.	Understanding data privacy and Data Protection Act and subsequent legislation. Security risks and how to minimise these. Computer Misuse Act.	Students show respect towards each other, their teacher and the wider community. Students exhibit wisdom when they know what they have done in a context of where that will lead to, with high levels of engagement through a passion for learning and a level of challenge.	Rights as a data subject. The value of personal data to companies. Possible consequences of security breaches. The difference between firewalls and anti-virus software. Ethics - e.g. different hat hackers.	KS2 – The Internet Communication Students have also covered Privacy and security briefly in Y7/8. KS2 outcome - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content	KS4 - BTEC Tech Award DIT Component 3: Effective Digital Working Practices KS4 computing curriculum.	Further research and understanding of the laws surrounding privacy and security.	From an environmental standpoint students are encouraged to understand the ways that computer systems and parts can be recycled, reused and have extended lives. The understanding of environmental impacts is taught through lesson themes. Democracy is something students will learn about and will know how to treat	We encourage students to read newspapers We encourage students to watch the news Current affairs are incorporated into lessons Make links to 'real life'	Link to careers in cybersecurity. NC link: understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns. create, re-use, revise

				Students are happy and demonstrate a hunger for learning and courage to attempt new tasks and complete current ones. Misconceptions are corrected and challenged at an appropriate level.		and contact			others fairly and how to make things work for the whole class as well as the individual. Rule of Law is taught through lesson themes as well with school rules also being adhered to and considered at all times. Individual Liberty – It is important to have students understand their freedoms as well as knowing how these fit in with the school ethos. Students will know their rights as individuals and will know both what to expect and what is expected of them.		and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability

									Mutual respect for tolerance of those with different faiths and beliefs, and for those without faith is important Resilience is taught through the lessons when students are pushed to achieve their best, moving out of their perceived limits at times and getting the deserved rewards as a result.		
HT2 31.10.22 - 16.12.22 7 weeks	Spreadsheets	Recap on Basic spreadsheet skills from Y7/8. Advanced skills - COUNTA - COUNTIF - COUNTBLANK - IF - WHATIF - SUMIF - Conditional formatting Filtering Absolute cell references (dollar sign and named cells)	Problem solving Manipulating data independently Trial and error Computational thinking - logic - predicting, analysing Mathematical operators	Progress in computing key topics - application software Progress in computing key topics - data Analyse problems in computational terms Apply K&U of the key concepts and	Basic recap will be needed, e.g. formulas start with =, * is multiply etc. Students may need help removing filters once applied. Graphs/charts - titles.	KS2 outcome: select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals,	In Y9 students will further develop their spreadsheet skills. This will be built on further at KS4 should they choose IT as an option.	Explaining and analysing.	Resilience is taught through the lessons when students are pushed to achieve their best, moving out of their perceived limits at times and getting the deserved rewards as a result. Mutual respect for tolerance of those with	We encourage students to read newspapers We encourage students to watch the news Current affairs are incorporated into lessons Make links to 'real life'	Link to business and how businesses might use spreadsheets *Map to NC outcomes design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical

		Summaries of data represented effectively.		principles of computing

Develop confident and responsible use of modern information technologies | | including collecting, analysing, evaluating and presenting data and information

In Y7 or 8 students will have learnt basic formulas, cell referencing, and the SUM, MIN , MAX and AVERAGE Functions.

They will also have created charts.

*Note - the Y8/9 lessons are the same this year as the students missed content in Y7 due to covid and no IT suites. | | | different levels of understanding and knowledge - peer support. | | systems

undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users. |
| HT3 04.1.23 - 10.02.23

6 weeks | Search and sorts and algorithms | Understand the concepts of abstraction and decomposition

Be able to design algorithms to solve a range of computational problems

Be able to analyse the | Problem solving

Logical thinking

Mathematical patterns | Progress in computing key topics - Algorithms and Data

Analyse problems in | Flowchart shapes and symbols - which to use and when | KS2 outcomes - use logical reasoning to explain how some simple algorithms work and to detect and correct errors | Links to KS4 IT and Computer science | Different approaches to problem solving of additional challenge tasks | Mutual respect for tolerance of those with different faiths and beliefs, and for those without faith is important | We encourage students to read newspapers

We encourage students to watch the | Careers in computer science

NC link

design, use and evaluate computational abstractions |

		effectiveness of different approaches to solving problems Combine the principles of abstraction, decomposition and algorithm design with pattern recognition to solve a range of problems Understand the benefits of a modular approach to programming Know how to read flow diagrams Be able to design algorithms in the form of flow diagrams, using standard symbols Apply pattern recognition to identify the cause of a real-world problem and understand how it can be solved Analyse different approaches to solving problems		computational terms Plan creative solutions to problems Confident and responsible use of modern technology		in algorithms and programs			Resilience is taught through the lessons when students are pushed to achieve their best, moving out of their perceived limits at times and getting the deserved rewards as a result.	news Current affairs are incorporated into lessons Make links to 'real life'	that model the state and behaviour of real-world problems and physical systems understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary

											numbers [for example, binary addition, and conversion between binary and decimal]
HT4 20.02.23 - 31.03.23 6 weeks	Python	Using the print function Variables Inputs Selection Finding and fixing errors	Problem solving Writing programs Trial and error Computational thinking - logic - predicting, analysing Mathematical operators	Creating students who can solve problems and think outside the box to create solutions	Capital letters Spelling (Syntax errors) Logical errors Naming variables	KS2 outcomes: design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts Students will have had experience with block based programming both at primary school and in Y8. *Note - currently the same content as Y8 Python as the current year	In GCSE Computer science students need to use programming languages such as Python.	All lessons will include challenge tasks in them, specific examples include writing own code unguided and also creating 'How to' guides.	Resilience is taught through the lessons when students are pushed to achieve their best, moving out of their perceived limits at times and getting the deserved rewards as a result. Mutual respect for tolerance of those with different levels of understanding and knowledge - peer support.	We encourage students to read newspapers We encourage students to watch the news Current affairs are incorporated into lessons Make links to 'real life'	In the first lesson students need to research IT jobs, specifically a software developer. Teacher to discuss range of IT options pre KS3 with students at this point.

						9's did not cover this in Y8.						
HT5 17.04.23 - 26.05.23\n\n6 weeks	Online Safety	Online reputation\n- Describe how to manage this\n- Laws governing online behaviour\n\nOnline relationships\n- Sharing images\n- Legal implications\n- Help\n- Consequences\n\nOnline bullying\n- Bullying Vs Banter\n- How to intervene\n- Strategies\n- Reporting\n\nPrivacy and security\n- Recap on personal data\n- Recovering devices\n- Hacking\n- reporting	Online safety skills - this term will cover 5 of the 8 key strands from the Education for a connected world framework *Note the others are covered in Collective worship and PSCHE*\n\nCommunication skills - class discussions\n\nLiteracy skills - literacy tasks in line with school policy	Wisdom to know how to be safe online and to have the courage to ask for help when needed\n\n**Online reputation:** Students will explore the concepts of reputation and how others may use online information to make judgements .They will have opportunities to develop strategies to manage personal digital content effectively and capitalise on technology's capacity to create effective positive profiles.	How to report issues such as sexting\n\nThat images will not be looked at\n\nThat the students will never be 'told off' or 'blamed'\n\nActions that can be taken if laws have been broken (e.g for online bullying)\n\nLegal consequences of copyright and hacking	KS2 outcomes:use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact\n\nPlease refer to the "Education for a Connected World" framework which shows progression for all strands from KS1-KS5	Please refer to the "Education for a Connected World" framework which shows progression for all strands from KS1-KS5	The outcomes for the following year will be used as challenge work\n\nReal life applications and giving advice to others on topics will form a par of the challenge tasks	From an environmental standpoint students are encouraged to understand the ways that computer systems and parts can be recycled, reused and have extended lives. The understanding of environmental impacts is taught through lesson themes.\n\nDemocracy is something students will learn about and will know how to treat others fairly and how to make things work for the whole class as well as the individual.\n\nRule of Law is taught through lesson	We encourage students to read newspapers\n\nWe encourage students to watch the news\n\nCurrent affairs are incorporated into lessons\n\nMake links to 'real life'	The skills learned from completing KS3 will provide background and knowledge for students to progress into work roles and be computer and software literate.\n\nSpecialist careers in IT will include:\n\nIT teacher\n\nWeb designer\n\nGraphic artist\n\nAnimator\n\nSoftware Developer\n\nData Analyst\n\nSystems Analyst\n\nBusiness Analyst\n\nIT Support

				Online relationships: Focus on sexting for the Y9 students and the implications of this - discusses consent and positive online relationships and how to report. **Online bullying:** Students will explore bullying and other online aggression and how technology impacts on these issues. They will learn strategies for effective reporting and intervention and consider how bullying and other aggressive behavior relates to					themes as well with school rules also being adhered to and considered at all times. Individual Liberty – It is important to have students understand their freedoms as well as knowing how these fit in with the school ethos. Students will know their rights as individuals and will know both what to expect and what is expected of them. Mutual respect for tolerance of those with different faiths and beliefs, and for those without faith is important Resilience is		Analyst Network Engineer IT Consultant Technical Sales Rep NC link: understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns. create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability

				legislation. **Privacy and security:** Students will explore how personal online information can be used, stored, processed and shared. They will learn both behavioural and technical strategies to limit impact on privacy and protect data and systems against compromise. **Copyright and ownership**: Students will explore the concept of ownership of online content and explore strategies for protecting personal content and					taught through the lessons when students are pushed to achieve their best, moving out of their perceived limits at times and getting the deserved rewards as a result.		

				crediting the rights of others as well as addressing potential consequences of illegal access, download and distribution.							
HT6 5.06.23 - 21.07.23 7 weeks	Sound and video editing	-Describe how digital images are composed of individual elements - recall that the colour of each picture element is represented using a sequence of binary digits - define key terms such as 'pixels', 'resolution' and 'colour depth' - Describe how an image can be represented as a sequence of bits representing each colours intensity - compute the representation size of a digital image by multiplying resolution (number of pixels) with colour depth (number of bits used to represent the colour of individual pixels) - describe the main trade-off between representation size and perceived quality of digital images -perform basic editing tasks using appropriate	Analysis skills - Analyse problems in computational terms Problem solving - Use technology to solve problems Creativity - sound and image Mathematical skills	Progress in Computing key topics - Application software and Digital media Develop confident and responsible use of modern information technologies Plan creative solutions to problems	Calculating sizes of files Editing using new software	KS2: select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	Links to KS4/5 IT and computing, and also photography, music and graphics	Calculations and more complex editing - lessons will have challenge work built in	Democracy is something students will learn about and will know how to treat others fairly and how to make things work for the whole class as well as the individual. Rule of Law is taught through lesson themes as well with school rules also being adhered to and considered at all times. Individual Liberty – It is important to have students understand	We encourage students to read newspapers We encourage students to watch the news Current affairs are incorporated into lessons Make links to 'real life'	Links in graphics and music industry. *NC links: create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to

		software and combine them in order to solve more complex problems related to image manipulation - creative benefits and ethical drawbacks of image manipulation - Explain the function of microphones and speakers as components that capture and generate sound -define key terms such as 'sample', 'sampling frequency/rate' and 'sample size'/ - describe how sounds are represented as sequences of bits. - sound editing tasks - compression						their freedoms as well as knowing how these fit in with the school ethos. Students will know their rights as individuals and will know both what to expect and what is expected of them. Mutual respect for tolerance of those with different faiths and beliefs, and for those without faith is important Resilience is taught through the lessons when students are pushed to achieve their best, moving out of their perceived limits at times and getting the deserved rewards as a result.		achieve challenging goals, including collecting and analysing data and meeting the needs of known users

Skills developed throughout the programme

Cognitive skills
● Non-routine problem solving – expert thinking, metacognition, creativity.
● Systems thinking – decision making and reasoning.
● Critical thinking – definitions of critical thinking are broad and usually involve general cognitive skills such as analysing, synthesising and reasoning skills.
● ICT literacy – access, manage, integrate, evaluate, construct and communicate.

Interpersonal skills
● Communication – active listening, oral communication, written communication, assertive communication and non-verbal communication.
● Relationship-building skills – teamwork, trust, intercultural sensitivity, service orientation, self-presentation, social influence, conflict resolution and negotiation.
● Collaborative problem solving – establishing and maintaining shared understanding, taking appropriate action, establishing and maintaining team organisation.

Intrapersonal skills
● Adaptability – ability and willingness to cope with the uncertain, handling work stress, adapting to different personalities, communication styles and cultures, and physical adaptability to various indoor and outdoor work environments.
● Self-management and self-development – ability to work remotely in virtual teams, work autonomously, be self-motivating and self-monitoring, willing and able to acquire new information and skills related to work.