

Long Term Plan KS3 Computing - Year 7

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	Getting started	<p>Know and understand the key concepts and principles of Computing:</p> <p>Know the processes for logging into the academy network and Google Suite for education Know the process for sending and receiving emails Understand how to save, rename and organise files Understand how to access files stored in the cloud Understand the key principles of internet safety Understand the qualities of vector and bitmap graphics</p>	<p>Apply knowledge and understanding to the key concepts of Computing:</p> <p>Log into the academy's network and Google Education suite proficiently Send and receive emails successfully, using appropriate language and content Organise files and folders to facilitate ease of access and use Demonstrate safe practices when using the internet Be able to create and manipulate</p>	Users are responsible, competent, confident and creative users of information and communication technology	<p>Text talk in emails</p> <p>Differences between files and folders</p> <p>Different types of images - the difference between them</p> <p>What makes a good password</p>	<p>No prior learning is necessary, although it is expected that students will be familiar with computers and will have had some experience using email and word processing software.</p> <p>KS2 NC outcome:</p> <p>Understand computer networks, including the internet; how they can provide multiple services, such as the WWW, and the opportunities</p>	The skills learnt during this first half-term will be necessary for a range of subjects (not just computing) where the network is used.	<p>CC and BCC in email - what is the difference?</p> <p>Challenge tasks will be built into all lessons - refer to MTP</p>	<p>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.</p> <p>Mutual respect for tolerance of those with different levels of understanding and knowledge - peer support.</p> <p>Copyright - rule of law - discussed when using images</p>	<p>We encourage students to read newspapers</p> <p>We encourage students to watch the news</p> <p>Current affairs are incorporated into lessons</p> <p>Make links to 'real life'</p>	<p>Any jobs working with computers will require users to work with files and folders - this will help prepare them for the world of work.</p> <p>NC Link:</p> <p>Understand a range of ways to use technology safely, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to</p>

			<p>images</p> <p>Analyse problems in computational terms:</p> <p>Identify the most appropriate tools to use when editing an image</p> <p>Develop confident and responsible use of modern information technologies</p> <p>Demonstrate proficiency in using the academy's network and computing facilities Using image-editing software with confidence</p>			they offer for communication and collaboration			Rule of Law is taught through lesson themes as well with school rules also being adhered to and considered at all times.		<p>report concerns.</p> <p>Create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness and design</p>
<p>HT2 31.10.22 - 16.12.22</p> <p>7 weeks</p>	<p>Introducing Spreadsheets</p>	<p>Understand how to write basic formulae in a spreadsheet</p> <p>Understand the concept of replication and the uses of relative and absolute cell referencing</p> <p>Understand how to name cells and ranges within a spreadsheet</p>	<p>Use a range of basic formulae to manipulate data</p> <p>Use conditional formatting</p> <p>Create graphs and charts to represent different types of information</p>	<p>Solving mathematical problems using IT</p> <p>Analytical skills</p> <p>Data representation</p> <p>Modelling</p>	<p>The different operators used / * (different from maths).</p> <p>Selecting relevant data for charts and labelling these appropriately.</p> <p>Why different</p>	<p>Students will need to understand basic arithmetic; addition, subtraction, multiplication and division</p> <p>KS2 NC Link: Select, use and combine</p>	<p>KS4 NC outcome: Develop and apply their analytic, problem-solving, design and computational thinking skills</p> <p>Links to both</p>	<p>Challenge tasks will be built into all lessons, but specific functions and skills will be targeted for challenge work from the Y8 spreadsheet unit. For example</p>	<p>Mutual respect for each other - peer reviewing and support is encouraged.</p> <p>Resilience is taught through the lessons when students are</p>	<p>We encourage students to read newspapers</p> <p>We encourage students to watch the news</p> <p>Current affairs are</p>	<p>Career links: Data controller Analysts Financial jobs such as accountants. Business roles, e.g. management</p>

		<p>Understand how to write a range of basic functions, including SUM, AVERAGE, MAX, MIN, COUNT and IF</p> <p>Understand how to use conditional formatting</p> <p>Understand how to use data in spreadsheets to create graphs and charts</p>	<p>Identify the most appropriate functions to use when developing spreadsheets for a particular purpose</p> <p>Identify the most appropriate chart of graph to display different types of information</p> <p>Become proficient in the use of spreadsheets to handle data in a variety of situations</p> <p>Interpret data from spreadsheets</p>	<p>outcomes</p> <p>Trial and error</p> <p>Resilient learners</p>	<p>formulas and functions are used.</p>	<p>a variety of software (including internet services) on a range of digital systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p>	<p>the IT and Computing curriculums at KS4 and 5.</p>	<p>Elsf_statements</p>	<p>pushed to achieve their best, moving out of their perceived limits at times and getting the deserved rewards as a result.</p> <p>Rule of Law is taught through lesson themes as well with school rules also being adhered to and considered at all times.</p>	<p>incorporated into lessons</p> <p>Make links to 'real life' examples</p>	<p>NC Link:</p> <p>Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems</p> <p>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</p>
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<p>HT3 04.1.2 3 - 10.02. 23</p> <p>6 weeks</p>	<p>Computing past, present and future</p>	<p>Know about important figures in the development of computing</p> <p>Understand Moore's Law and how computer technology has developed and changed over time</p> <p>Know how to format documents</p> <p>Understand the importance of aesthetics when presenting information and have an awareness of factors that can inhibit this</p>	<p>Present knowledge about computing using word processing and presentation software</p> <p>Use formatting appropriately</p> <p>Ensure that work has been proofread and spelling and grammar has been checked</p> <p>Select appropriate text and images for use in presentations</p> <p>Design presentations to convey information effectively</p> <p>Use word processing and presentation software to present information effectively.</p>	<p>Users are responsible, competent, confident and creative users of information and communication technology</p> <p>Formatting skills</p> <p>Research skills</p>	<p>Rules of formatting work well - presentation skills, e.g. range of fonts, colours, layout etc.</p>	<p>Students will be creating document and presentation files so will need basic file handling skills in order to save and retrieve their work. Students will also benefit from experience creating vector-style graphics which will have been covered in the first half-term in "Getting started".</p>	<p>Links to KS4/5 IT and computing.</p> <p>KS4 outcome:</p> <p>develop their capability, creativity and knowledge in computer science, digital media and information technology</p>	<p>Challenge tasks will be built into lessons - refer to MTP, In this unit specific additional formatting skills and delving into the topic deeper will be used.</p>	<p>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.</p> <p>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.</p> <p>Rule of Law is taught through lesson themes as well with school rules also being</p>	<p>We encourage students to read newspapers</p> <p>We encourage students to watch the news</p> <p>Current affairs are incorporated into lessons</p> <p>Make links to 'real life' examples</p>	<p>Career links</p> <p>Many job roles will require students to be able to format and present work well.</p> <p>NC links:</p> <p>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</p> <p>create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness</p>
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									<p>adhered to and considered at all times.</p> <p>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.</p> <p>Mutual respect for tolerance of those with different faiths and beliefs, and for those without faith is important</p> <p>Resilience is taught through the lessons when students are pushed to achieve their</p>		<p>s, design and usability</p>
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									best, moving out of their perceived limits at times and getting the deserved rewards as a result.		
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<p>HT4 20.02. 23 - 31.03. 23</p> <p>6 weeks</p>	<p>Scratch</p>	<p>Understand the concepts of sequencing, selection and iteration</p>	<p>Develop working programs in Scratch</p> <p>Analyse the requirements of a program</p> <p>Identify the processes needed to solve a problem,</p> <p>Design programs in Scratch to solve specific problems</p> <p>Use Scratch confidently to solve a range of problems.</p>	<p>Logical reasoning</p> <p>Computational thinking</p> <p>can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems</p>	<p>Misconceptions alongside what different blocks of code are used for and the difference between different angles when making shapes and things such as forever and repeat loops.</p>	<p>There is no requirement for students to have used Scratch before, although prior knowledge of Scratch may be useful. Students will be performing calculations in scratch to an understanding of basic arithmetic operators (addition, subtraction, multiplication and division is needed).</p> <p>KS2: use sequence, selection, and repetition in programs; work with variables and various forms of input and output</p> <p>Design, write and debug programs that accomplish specific goals, including controlling or</p>	<p>Programming links to the KS4 computing curriculum.</p> <p>NC outcomes: develop and apply their analytic, problem-solving, design, and computational thinking skills</p> <p>develop their capability, creativity and knowledge in computer science, digital media and information technology</p>	<p>Challenge tasks will be built into lessons - refer to MTP,</p> <p>In this unit, students will be encouraged to show additional skills when they develop their code.</p>	<p>Rule of Law is taught through lesson themes as well with school rules also being adhered to and considered at all times.</p> <p>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.</p> <p>Mutual respect for tolerance of those with different faiths and beliefs, and for those without faith is important</p>	<p>We encourage students to read newspapers</p> <p>We encourage students to watch the news</p> <p>Current affairs are incorporated into lessons</p> <p>Make links to 'real life' examples</p>	<p>Career links:</p> <p>Software developer roles</p> <p>Programmers</p> <p>Mathematicians</p> <p>NC Links:</p> <p>use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions</p>
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						simulating physical systems, solve problems by decomposing them into smaller parts.			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.		
HT5 17.04.23 - 26.05.23 6 weeks	Online Safety	1. Online reputation and managing information online - students can describe and assess the benefits and the potential risks for sharing information online - students can explain how the information online services hold about someone forms part of their online identity and how this differs from their digital personality - students can describe what is appropriate to say and do in different online settings/platforms (e.g. opinions, values, information, shares, likes, forwards) - students can explain why using various additional tools can refine my searches more effectively (e.g.	Online safety skills - this term will cover 5 of the 8 key strands from the Education for a connected world framework <i>*Note the others are covered in Collective worship and PSCHÉ</i> Communication skills - class discussions Literacy 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 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	Ownership of data What the term bullying means Misconceptions about online relationships How to report How to search effectively Trustworthiness of sources Future impacts of data online	Please refer to the "Education for a Connected World" framework which shows progression for all strands from KS1-KS5 KS2 NC Outcome: Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour;	Please refer to the "Education for a Connected World" framework which shows progression for all strands from KS1-KS5 KS4 outcome: Understand how changes in technology affect safety, including new ways to protect their online privacy and identify, and	The outcomes for the following year will be used as challenge work Real life applications and giving advice to others on topics will form a part 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. Democracy is something students will learn about and will know	We encourage students to read newspapers We encourage students to watch the news Current affairs are incorporated into lessons Make links to 'real life' examples	The skills learned from completing KS3 will provide background and knowledge for students to progress into work roles and be computer and software literate. Specialist careers in IT will include: IT teacher Web designer Graphic artist Animator Software

		<p>search filters, size, type, usage rights, etc) - students can explain how online content published by an individual can be interpreted differently by others - students can explain how liking or sharing or forwarding online content can change people's opinions of someone (e.g. contribute or damage their online reputation) - students can explain how online marketplaces can enable small businesses or individuals to do business on a wider/global scale - students can assess the benefits and limitations of online commerce</p> <p>2. Online bullying and relationships - Students can describe how bullying may change as we grow older and recognize when it is taking place online - Students can describe a range of different bullying types and behaviours and assess when these are occurring (e.g. homophobia, racism, gender discrimination, sexism, ableism, exclusion of others</p>		<p>personal digital content effectively and capitalise on technology's capacity to create effective positive profiles.</p> <p>Managing online information : Students will explore how online information is found, viewed and interpreted. They will learn strategies to search effectively, evaluate data, recognise risks and manage content of online threads and challenges. They should understand ethical publishing.</p> <p>Online</p>		<p>identity a range of ways to report concerns about content and contact.</p>	<p>how to identify and report a range of concerns.</p>		<p>how to treat others fairly and how to make things work for the whole class as well as the individual.</p> <p>Rule of Law is taught through lesson themes as well with school rules also being adhered to and considered at all times.</p> <p>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.</p> <p>Mutual</p>	<p>Developer</p> <p>Data Analyst</p> <p>Systems Analyst</p> <p>Business Analyst</p> <p>IT Support Analyst</p> <p>Network Engineer</p> <p>IT Consultant</p> <p>Technical Sales Rep</p> <p>NC Links: 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.</p>
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		<p>from online forms of communication, setting up fake profiles of another person)</p> <ul style="list-style-type: none"> -Students can explain why anyone experiencing online abuse is never to blame (e.g. victim blaming) and that to suggest they are is wrong - Students can identify and demonstrate actions to support others who are experiencing difficulties online - Students can explain the importance of having a choice and giving others a choice online - They can explain how and why people who communicate with others through online platforms may try to influence others negatively and can offer examples, e.g. racist/homophobic comments, social influencers sharing weight loss products, grooming, radicalisation, coercion - They can explain strategies for assessing the degree of trust they place in people or organisations online - They can describe some signs of harmful online situations e.g. sexual harassment, 		<p>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 legislation.</p> <p>Online relationships: Students explore how technology shapes communication styles and identifies strategies for positive relationships in online communities. They are</p>					<p>respect for tolerance of those with different faiths and beliefs, and for those without faith is important</p> <p>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.</p>	
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		<p>grooming, cyberbullying</p> <ul style="list-style-type: none"> - They can assess when they need to take action and explain what to do if they are concerned about their own or someone else's online relationship <p>3. Privacy and security</p> <ul style="list-style-type: none"> -Students can explain why someone should use a strong and separate password for their email account as the gateway to other online accounts -Students can explain the terms 'connectivity' and the 'internet of things' - They can recognise that devices can collect and share data about users with or without their knowledge or awareness, e.g. device usage including microphone, camera and geolocation - Students can understand the benefits of two factor authentication and use it where available I can explain why backing up data is important and how this can be done -Students can explain how and why it is important to always ensure someone makes safe and secure online payments -Students can explain why online services 		<p>given the opportunity to discuss relationships, respecting, giving and denying consent and behaviours that may lead to harm and how positive interaction online can empower and amplify voice.</p> <p>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</p>							
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		<p>have terms and conditions that govern their use and give examples that illustrate how they impact on a user, e.g. age restrictions</p> <ul style="list-style-type: none"> -Students can explain what malware is and give some examples of how it operates and what the impact could be on a device or user (e.g. viruses, trojans, ransomware) -Students can explain what cookies are and can give examples of how my online browsing can be tracked and used by others (e.g. adware) -Students can explain that devices and the internet can be monitored in order to keep people safe <p>4. Copyright</p> <ul style="list-style-type: none"> -Students know that commercial online content can be viewed, accessed or downloaded illegally -Students can give some examples of illegal access (e.g. illegal streaming, pirate sites, torrent sites, peer-to-peer sharing) and the associated risks - Students can accurately define the concept of plagiarism - Students can use this definition to evaluate 		<p>data and systems against compromise.</p> <p>Copyright and ownership: Students will explore the concept of ownership of online content and explore strategies for protecting personal content and crediting the rights of others as well as addressing potential consequences of illegal access, download and distribution.</p>							
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		<p>online sources</p> <p>5. Test. Covering key objectives from the 5 lessons this term</p>									
<p>HT6</p> <p>5.06.2 3 - 21.07. 23</p> <p>7 weeks</p>	<p>Computing components</p>	<p>Know about and understand the function of a range of input and output devices</p> <p>Know about and understand different types of memory and storage and their use</p>	<p>Identify the correct input and output devices to use in a range of different situations.</p>	<p>Evaluation skills</p> <p>Analysis skills</p> <p>Literacy skills</p> <p>Presentation skills</p> <p>Technical knowledge</p>	<p>Devices that are 'all in one' and how these can be classified.</p> <p>Storage sizes and calculations of these.</p>	<p>There is no requirement for students to have had any prior learning about computer components. However, they will need basic arithmetic to convert between different storage units and basic spreadsheet skills to create a graph.</p>	<p>Links to KS4 IT and Computing curriculums.</p>	<p>Challenge work will be built into all lessons - refer to MTP.</p> <p>In particular students may start to look in more depth at what devices are used for and how technology is emerging so devices are often a mixture of input and output.</p>	<p>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.</p> <p>Rule of Law is taught through lesson themes as well with school rules also being adhered to and considered at all times.</p> <p>Individual Liberty – It is</p>	<p>We encourage students to read newspapers</p> <p>We encourage students to watch the news</p> <p>Current affairs are incorporated into lessons</p> <p>Make links to 'real life' examples</p>	<p>Career links:</p> <p>Computer technicians</p> <p>Network managers</p> <p>NC Links:</p> <p>understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems</p>

									<p>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.</p> <p>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.</p>		
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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.