

**Subject: Computing      Year 7      Ability Mixed**

	Unit 1	Unit 2	Unit 3
<b>Topic</b>	Getting Started	Introducing Spreadsheets	Computers – Past, Present and Future
<b>Topic overview Pupils will learn...</b>	Understand how to use networks (the school network and the internet) safely and responsibly, develop skills needed to work efficiently across a range of software and identify good practice when using digital tools	Understand the key uses of spreadsheets and develop the skills needed to collect, analyse (model) and present data for the needs of specific users	Explore the development of computers over history through discrimination of information and understand how to present successfully to an audience through combining the use of a range of software
<b>Components</b>	<ul style="list-style-type: none"> <li>• Demonstrate proficiency in using the school's network and computing facilities in order to access digital resources and develop digital literacy</li> <li>• Know the processes for and be able to access and send emails successfully, using appropriate language and content in order to communicate in an efficient and professional manner</li> <li>• Organize files and folders to facilitate ease of access and use in order to work in an organized and efficient fashion when working digitally</li> <li>• Understand how to access files stored in the cloud in order to access materials online within lessons and for research activities for all subjects</li> <li>• Understand key principles of internet safety and demonstrate safe practices, identify key risks such as cyberbullying, grooming, fraud, and identity theft and how to seek support in order to behave and operate safely online</li> <li>• Understand the qualities of vector and bitmap graphics in order to describe distinct types of digital image and why they might be used</li> <li>• Identify the most appropriate tools to use when editing an image and be able to create and manipulate images in order to develop skills in the use of industry standard editing software (Photoshop and Fireworks) for use in future digital career opportunities</li> </ul>	<ul style="list-style-type: none"> <li>• Explore the real-world application of spreadsheets in order to understand how software is used to capture and model data for a range of purposes</li> <li>• Understand how to identify cells, ranges within a spreadsheet and use cell referencing in order to access and use specific data</li> <li>• Understand how to write basic formulae within a spreadsheet, and use a range of basic functions including sum, average, max, min, count and if in order to analyse and manipulate data for a specific purpose</li> <li>• Demonstrate and develop skills in using conditional formatting, graphs and charts in order represent different types of information in the most appropriate format</li> <li>• Analyse problems in computational terms by identifying the most appropriate functions to use when developing a spreadsheet for a particular purpose</li> <li>• Identify the most appropriate chart or graph to display different types of information in order to present data for the needs of a known user</li> <li>• Demonstrate confident and responsible use of modern information technologies in order to autonomously identify the most appropriate software and tools to use for specific aims</li> </ul>	<ul style="list-style-type: none"> <li>• Explore key figures and ideas within the development of computing, including Moore's Law, to be able to articulate how computer technology has developed and improved over time</li> <li>• Present knowledge about computing through the use of word-processing and presentation software in order to demonstrate proficiency in using a wide range of Office based software</li> <li>• Use appropriately and describe the tools used to format documents, in order to show an of understanding in the importance of aesthetics when presenting and conveying information</li> <li>• Select appropriate text and images for use in presentations and ensure that work has been proofread and that spelling and grammar has been checked in order to maximise the impact of meaning as well as develop and show high levels of literacy</li> <li>• Understand and use the design cycle in order to plan, design and review creative solutions to problems and confidently combine skills across a wide range of software, such as web browsers, presentation, word-processing and productivity software</li> <li>• Use review techniques to evaluate the effectiveness of a word-processed document or presentation and identify how it could be improved in order to improve its impact upon an audience</li> <li>• Identify the skills needed to present information to an audience and the use of presentation software as a tool to improve impact and comprehension</li> </ul>
<b>What pupils should already know (Prior learning components)</b>	In KS2 Computing, students should have been taught to – <ul style="list-style-type: none"> <li>• understand computer networks including the internet; how they can provide multiple services, such as the world wide web</li> <li>• use search technologies effectively</li> <li>• select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of content that accomplish given goals</li> </ul>	In KS2 Mathematics, students should have been taught to - <ul style="list-style-type: none"> <li>• understand basic arithmetic operators: addition, subtraction, multiplication and division</li> <li>• use arithmetic operators to perform mental arithmetic</li> <li>• understand the concept of and perform average calculations (mean)</li> </ul> In KS2 Computing, students should have been taught to -	In KS2, students should have been taught to – <ul style="list-style-type: none"> <li>• 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</li> <li>• use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</li> </ul>

	<ul style="list-style-type: none"> <li>use technology safely, respectfully, and responsibly; recognize acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</li> </ul>	<ul style="list-style-type: none"> <li>use search technologies effectively and be discerning in evaluating digital content</li> <li>select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of content that accomplish given goals</li> <li>use technology safely, respectfully, and responsibly</li> </ul>	<p>In KS2 History, students should have developed the ability to –</p> <ul style="list-style-type: none"> <li>note connections, contrasts and trends over time and</li> <li>construct informed responses that involve thoughtful selection and organisation of relevant historical information and understand how our knowledge of the past is constructed from a range of sources.</li> </ul> <p>In KS2 English, students should have been taught to –</p> <ul style="list-style-type: none"> <li>plan their writing by identifying the audience for and purpose of the writing, selecting the appropriate form and using other similar writing as models for their own; noting and developing initial ideas, drawing on reading and research where necessary</li> <li>evaluate and edit work by assessing the effectiveness of their own and others’ writing</li> </ul>
<b>Transferrable knowledge (skills)</b>	<ul style="list-style-type: none"> <li>Being able to access computer systems, navigate to specific files and organise work in a logical structure.</li> <li>The ability to search for information sources online and curate material based on relevance, factual content and needs of a specific purpose and audience</li> <li>Being able to use multiple pieces of software (such as a web browser, presentation software, image editing software and a cloud computing system) in quick succession to create and refine design projects</li> <li>Use of inference and articulation to obtain key knowledge from a topic and apply understanding when presenting findings</li> <li>The ability to identify safe online behaviour and develop skills in dealing with evolving risks as they emerge (within classroom-based scenarios and beyond)</li> </ul>	<ul style="list-style-type: none"> <li>Being able to access computer systems, navigate to specific files and organise work in a logical structure.</li> <li>Being able to use multiple pieces of software (such as a web browser, spreadsheet software, image editing software and a cloud computing system) in quick succession to create and refine design projects</li> <li>Use of articulation to decide upon, use and justify the use of specific tools and skills to solve a wide computational problem</li> <li>Being able to predict the outcome when using specific skills and identify / correct errors when they occur</li> <li>Being able to check the accuracy of arithmetic calculations carried out electronically</li> </ul>	<ul style="list-style-type: none"> <li>Being able to use multiple pieces of software (such as a web browser, presentation software, word-processing software and a cloud computing system) in quick succession to create and refine design projects</li> <li>Use of inference and articulation to obtain key knowledge from a topic and apply understanding when presenting findings</li> <li>The ability to plan a sequence of pieces of information and present in chronological order</li> <li>Use of the design cycle to plan, design and review a project</li> <li>The use of presentation skills to ‘inform’ an audience of key findings from research alongside well-designed presentation material</li> </ul>
<b>Key vocabulary pupil will know and learn</b>	Logging in, School network, Username and Password, Teams, Assignments, Reference materials, OneDrive / Cloud computing, Folder structure, Email, File / Document, File extension, Internet, Digital wellbeing, Bitmap graphic, Raster graphic, Image editing software, Vector graphic	Spreadsheet, cell, row, column, cell reference, formula, fill, function, cell range, brackets, SUM, AVERAGE, MAX and MIN, IF, logical test/logical expression, COUNTIF, criterion, COUNT, COUNTA, formatting, conditional formatting, bar chart, column chart, pie chart, line graph	Word-processing software, template, user interface (UI), design cycle, Moore’s Law, valve, transistor, microchip, presentation software
<b>Assessment activities</b>	<p>Two-part assessment</p> <ul style="list-style-type: none"> <li>Part 1 is a variety of knowledge-based questions, short answer tasks and extended writing tasks assessing the student’s ability to identify key terms and demonstrate knowledge learned, developed, and interleaved within the unit.</li> <li>Part 2 is a skills-based task where students demonstrate a combination of research and software skills, by creating a product designed to meet a set of success criteria</li> </ul>	<ul style="list-style-type: none"> <li>Regular low stakes testing at the end of each lesson to check knowledge.</li> <li>Practical lesson activities which will self-mark students’ work is correct, with cells turning green when students enter the correct answer.</li> <li>Do Now tasks which test previous learning and build recall on functions, formulae and formatting tools in use</li> </ul>	<ul style="list-style-type: none"> <li>Do Now tasks which test previous learning and build recall on functions, formulae and formatting tools in use</li> <li>Regular low stakes quiz testing at the end of each lesson to check knowledge.</li> <li>Use of RAG sheets to determine how successfully a piece of work has met assessment requirements</li> </ul>
<b>Resources available</b>	<p>KS2 NC information</p> <p><a href="https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/67222/national-curriculum-computing-key-stages-1-to-2.pdf">National Curriculum - Computing key stages 1 to 2 (publishing.service.gov.uk)</a></p> <p>BBC Bitesize reference for multiple lessons</p> <p><a href="https://www.bbc.com/bitesize/topics/cz9dntnq747p/revision-guides/computer-science-ks3">Internet communication - KS3 Computer Science - BBC Bitesize</a></p> <p><a href="https://www.bbc.com/bitesize/topics/cz9dntnq747p/revision-guides/computer-science-ks3">Safety and responsibility - KS3 Computer Science - BBC Bitesize</a></p>	<p>KS2 NC information</p> <p><a href="https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/67222/national-curriculum-computing-key-stages-1-to-2.pdf">National Curriculum - Computing key stages 1 to 2 (publishing.service.gov.uk)</a></p> <p>BBC Bitesize reference for Spreadsheets</p> <p><a href="https://www.bbc.com/bitesize/topics/cz9dntnq747p/revision-guides/computer-science-ks3">How spreadsheets work - Spreadsheets - KS3 ICT Revision - BBC Bitesize</a></p>	<p>KS2 NC information</p> <p><a href="https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/67222/national-curriculum-computing-key-stages-1-to-2.pdf">National Curriculum - Computing key stages 1 to 2 (publishing.service.gov.uk)</a></p> <p>Moore’s Law in 60 Seconds</p> <p><a href="https://www.youtube.com/watch?v=8Uj1Uj1Uj1U">What is Moore’s Law? [Explained] - YouTube</a></p> <p>BBC Bitesize reference for how computers have changed over time</p> <p><a href="https://www.bbc.com/bitesize/topics/cz9dntnq747p/revision-guides/computer-science-ks3">How computers have changed - BBC Bitesize</a></p>

<p>Notes</p> <p><b>Why this topic is important...</b></p>	<p>Before students can use a computer system, they need to know how to access it correctly. Students will need to be able to use the school computer system and cloud system (Office 365) for all their subjects and so this module focuses on ensuring that they develop a clear understanding and skills. The module starts by going through the basic procedures for accessing a school network including usernames, choosing suitable passwords and what constitutes acceptable use. This will ensure that students build all future digital literacy on a set of efficient and appropriate principles, which will support them in using computer systems throughout key stage 3 and 4, as well as further study and the world of work.</p> <p>This topic then introduces students to saving and organising files, which will enable them to develop digital organisational skills, which are crucial for keeping track of work produced on any digital device.</p> <p>The key principles of internet research and digital wellbeing are essential for supporting the mental welfare of students and identifying appropriate online practices that will enable them to safely navigate the online world, as well as equipping them to identify common risks and handle them confidently by seeking support. These concepts permeate through all units and are built upon in <b>Unit 1 Year 8</b> and <b>Unit 1 Year 9</b>, by considering the legal, ethical and personal impacts of operating online.</p> <p>Lastly, this topic explores the most common image types students will come across online, and gives them the opportunity to design their own, developing skills in a range of software types.</p>	<p>Spreadsheets are incredibly useful and powerful tools. They are used every day by people in all sorts of ways, from storing information about products and stock levels to managing multi-million-pound budgets. They can be used to store data, perform complex calculations and to create graphs and charts. They are often used to model what might happen in different situations. This unit is focused on using spreadsheets efficiently and effectively to perform a range of activities.</p> <p>This topic introduces students to the application and use of spreadsheets, both in terms of modelling and analysing data and its real-world uses. Many organisations beyond school require a level of comprehension of spreadsheets in order to function within the workplace. This topic supports students in preparing for the world of work, while building upon the foundations of the getting started by building exposure to the suite of Office software.</p> <p>The topic also supports numeracy well by linking to mathematical operations such as mean and subtotals, as well as designing charts and tables that can be used to draw out meaning from collected data. It will also support students in building the foundation learning needed to access more complex spreadsheet concepts in <b>Unit 2 Year 8</b>.</p>	<p>Without knowledge of the history of computers and computer science, it is impossible to predict how things might change in the future. It is only by looking back, realising how far we have come and appreciating the exponential increase in the processing power of our digital devices that we are able to project this trend into the future and make an educated guess about the changes that information technologies may bring in the future.</p> <p>This topic serves a dual purpose, developing students' skills with word-processing and presentation software at the same time as giving them an appreciation of the rapidly changing technologies that have brought the computer to where it is today and will immeasurably affect the world they experience as they grow up. In order to cover the joint aims of this topic simultaneously, the developments in computing over time and the key people responsible for those developments provide a context that students can use to improve their document formatting and presentation skills. Students will be encouraged to use experimentation, help tools, and online tutorials to discover for themselves how to use the tools built into applications. The core aspect of computer components is expanded upon in <b>Unit 3 Year 8</b> and <b>Unit 3 Year 9</b>, where students consider a wider range of components including those needed to manage large networks such as the internet.</p> <p>This topic builds sequentially from previous learning by expanding students' exposure to types of software and building on the concept of using multiple software packages to achieve aims. It also supports cross curricular links by referring to historical events, developing understanding of chronology and promoting the impact of women on the advancements within computing over time.</p>
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