

## Witchford Village College – Curriculum Mission Statement

Subject: Computing	Components			Composite	KS3 Mission Statement
	What new knowledge/content do we introduce?			What do students <i>do</i> with this knowledge?	<i>By the end of year 9, a Witchford Village College Computing student will...</i>
Year 7	Year 8	Year 9			
<b>Autumn</b>	<ul style="list-style-type: none"> <li>What can a spreadsheet do and what are its uses?</li> <li>How does my computer work and what is storage?</li> </ul>	<ul style="list-style-type: none"> <li>Can I program and control physical things?</li> <li>What is an information system and how do I produce one?</li> </ul>	<ul style="list-style-type: none"> <li>How do I interpret/understand problems &amp; use flowcharts to help me solve problems with code?</li> <li>Can I use code to make shapes?</li> </ul>	<ul style="list-style-type: none"> <li>Understand that computer systems, including hardware and software, are an integral part of the world around us now and in the future</li> </ul>	<ul style="list-style-type: none"> <li>+ Understand and apply the fundamental principles and concepts of computer science, including decomposition, abstraction, logic, algorithms and data representation</li> <li>+ Analyse problems in computational terms and have repeated practical experience of writing computer programs in order to solve such problems demonstrating a high degree of resilience</li> <li>+ Understand the hardware and software components that make up computer systems and how they communicate with one another including the internet</li> <li>+ Be aware of legislation including the DPA, GDPR, Copyright and</li> </ul>
<b>Spring</b>	<ul style="list-style-type: none"> <li>What are flowcharts and how do they help me?</li> <li>What are algorithms and pseudocode?</li> </ul>	<ul style="list-style-type: none"> <li>What are the threats to a computer system and how do I protect myself?</li> <li>Why do I need code to repeat and store data in lists?</li> </ul>	<ul style="list-style-type: none"> <li>What is binary, hexadecimal and Boolean logic?</li> <li>What are computer networks and how is the web different from the internet?</li> </ul>	<ul style="list-style-type: none"> <li>Routinely demonstrate an ability to decompose problems and identify a solution using flowcharts and pseudocode.</li> <li>Apply a range of programming techniques to create efficient and robust solutions with a high degree of resilience</li> </ul>	
<b>Summer</b>	<ul style="list-style-type: none"> <li>What is a program and how do I make one?</li> <li>How do I plan, create, debug and modify a program in python?</li> </ul>	<ul style="list-style-type: none"> <li>How is a Raspberry Pi different to a PC and laptop?</li> <li>How can I make a computer game?</li> </ul>	<ul style="list-style-type: none"> <li>How do I make an app?</li> <li>What does binary represent?</li> </ul>	<ul style="list-style-type: none"> <li>Create information systems suitable for the target audience and be fit for purpose.</li> </ul>	

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<p><b><i>Rationale for these specific components and composite outcomes:</i></b></p>	<ul style="list-style-type: none"> <li>• Students are exposed to the fundamental principles of programming through block and textual programming in an area that has growing importance in society.</li> <li>• Students are provided with a range of problems allowing them to think and plan for a solution promoting intellectual development and the development of problem solving skills.</li> <li>• Students explore the main components of a computer to help understand about the devices that are instrumental in our lives.</li> </ul>	<ul style="list-style-type: none"> <li>• Students continue their programming journey exploring additional techniques along with physical computing giving students the opportunity to raise their proficiency in handling different interfaces, syntax, algorithms, logic and analysis, all valued skills in industry.</li> <li>• Students discover the threats associated with computer systems to assist in staying safe and protected.</li> <li>• Students explore legislation relating to personal data and the misuse of computers enabling them to become responsible users of IT.</li> <li>• Students apply their knowledge of computer components to compare different digital devices giving students the knowledge to make informed choices.</li> <li>• Students explore further programming languages to design a computer game giving students an opportunity to show their creative flair when using digital technology.</li> </ul>	<ul style="list-style-type: none"> <li>• Students continue to develop their understanding of key computational thinking skills – algorithms, decomposition and pattern recognition to help solve problems in Computing and beyond.</li> <li>• Student continue to develop their programming skills to ensure they are ‘GCSE ready’.</li> <li>• The use of computing devices continues to rise and so does connecting with others. Students therefore need to know how and why we connect devices and the terminology associated with networking to help them make positive contributions in the word around us.</li> <li>• Students develop their creativity by investigating and producing a mobile app and there use across the globe for social and business purposes.</li> <li>• Students gain an understanding of the system behind the screen and how different data is stored.</li> </ul>	<p><i>The Computing curriculum has been designed to engage all learners with exciting and challenging components with particular focus on the fun of programming. Our curriculum fully covers each strand of the KS3 Computing National Curriculum and has clear links to GCSE specifications ensuring students have a solid grounding in the subject should they opt for GCSE Computer Science. Regardless of options choice, all students gain an understanding of Computing in the world around us giving them the knowledge, understanding and skills needed to make a positive contribution to their economic wellbeing and society in general.</i></p>	<p>the Computer Misuse Act when using digital devices and media</p> <p>+ Be responsible, competent, confident and creative users of information and communication technology</p>
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### *How is challenge embedded into the KS3 curriculum?*

- Along with teacher differentiation and scaffolding, each lesson includes a range of tasks allowing students of all abilities to make progress.
- Learning a textual programming language is a challenge in itself which some students can find daunting. Building encouragement and resilience in an environment where it is ok to make mistakes is essential.
- Students will sign up to the iDEA award to enhance their digital, enterprise and employability skills and are encouraged to complete this journey in their own time and extracurricular.
- Students have the opportunity to enter competitions such as the ‘Bebras Computing Challenge’ and ‘CyberCenturion’.
- Students are welcome to attend an extra curricula club focussing on their interests including programming, robotics, games design, iDEA award, BBC MicroBit and Raspberry Pi.

### *How does the KS3 curriculum above build on previous learning in KS2?*

- Students arrive at KS3 with a mixed experience of Computing but generally all have had some experience programming by creating a game or story using Scratch. Our KS3 curriculum builds upon this familiar interface by focussing on planning and embedding the key programming concepts such as variables, sequencing and selection to ensure students are ready for the next phase of the curriculum.
- Often students arrive using subject specific language such as laptop and Wi-Fi but in the wrong context. Students learn about different devices and technologies to ensure their subject knowledge moves forward.
- Many students know that binary is 1’s and 0’s. We build upon this knowledge to ensure students understand how data (text, images and sound) is stored on a computer.