



Curriculum Map: Year 7 Computer Science

Topic	Key Knowledge <i>What will all students KNOW by the end of the topic?</i>	Key Skills <i>What key skills will be learnt/developed by the end of the topic? What will all students be able to DO by the end of the topic?</i>	Assessment Opportunities <i>What are the key pieces of assessment? How will students be assessed?</i>
<p>Using the college network effectively and collaborating online respectfully</p>	<p>This unit is designed to build upon learners' experience in key stage 2. It requires learners to use a range of different skills and understand the importance of safety.</p> <p>Students will be able to:</p> <p>Know how to log into the and use the college network and work in accordance with the college acceptable use policy.</p> <p>Understand the importance of (and create) a strong password.</p> <p>How college email system works and how to construct a professional email.</p> <p>How Microsoft OneNote works and how to store work in the cloud.</p> <p>Know how the college printers and photocopiers work.</p> <p>To understand and describe some of the dangers online and who to go to for help with online safety issues.</p>	<p>Students will learn how to:</p> <p>Log into college network using username/password Setting a new (strong) password.</p> <p>Open relevant applications.</p> <p>Open emails, downloading attachments, emailing work to themselves, emailing staff/other students.</p> <p>Access OneNote via email and locate their work.</p> <p>Send work to printers and print off using fingerprint/username & password.</p> <p>Be able to identify and avoid online risks.</p> <p>Be able to access support in-school for online issues.</p> <p>Identify and take appropriate action in case of online issues.</p>	<p>Students will be assessed by:</p> <p>Creation of a presentation on online safety.</p> <p>Topic summative assessment.</p>

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	<p>Know about the different forms of cyber-bullying, how to avoid and how to deal with it.</p>		
<p>Programming and introduction to game design</p>	<p>This unit builds on prior learning of coding at KS2 via a personalized open-ended curriculum that lets students' progress at their own pace by introducing multiple computing concepts at the same time. Students will be able to independently tackle daily and weekly challenges.</p> <p>Students will be able to:</p> <p>Know how to create simple games.</p> <p>Apply the programming constructs of sequencing, selection, and iteration to the games.</p> <p>Use conditional logic and loops to determine outcomes.</p> <p>Create a simple two player platform game using the Tynker games engine.</p>	<p>Students will learn how to:</p> <p>Apply sequencing logic to solve puzzles.</p> <p>Use a range of code blocks to solve puzzles.</p> <p>Use conditional logic to solve puzzles.</p> <p>How to create a two-player game using blocks.</p> <p>How to implement physics block to program actors in the games.</p> <p>How to user JavaScript, Python and block-based programming where appropriate.</p>	<p>Students will be assessed by:</p> <p>Progress through the tasks set on Tynker.</p>
<p>Networks, from semaphores to the Internet</p>	<p>The unit will establish a foundation understanding of how data is transmitted across networks, as well as exploring the factors that can affect performance. The unit will spend time focussing on the internet and services provided over the internet.</p> <p>Students will be able to:</p>	<p>Students will learn how to:</p> <p>Understand the origins of the Internet and the WWW.</p> <p>Create simple and complex network diagrams.</p> <p>Understand bandwidth and test performance of their own connectivity.</p>	<p>Students will be assessed by:</p> <p>Practical lesson activities.</p> <p>Homework on network hardware homework.</p> <p>Multiple choice questions.</p>

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	<p>Define what a computer network is and explain how data is transmitted between computers across various networks.</p> <p>Define what a protocol is and provide examples of non-networking protocols.</p> <p>List examples of items of hardware necessary for connecting devices to networks.</p> <p>Compare and contrast wired, and wireless connections and the technologies used to implement these connections.</p> <p>Define what the internet is, how it was created and how the WWW utilises the associated connectivity and components.</p> <p>Describe how internet-connected devices can affect people.</p>	<p>Use the appropriate units for measuring the rate at which data is transmitted, and discuss familiar examples where bandwidth is important</p> <p>Explain the internet of things (IoT) and understand how personal data is collected without users' knowledge (including microphones, cameras, and geolocation).</p>	<p>Topic summative assessment.</p>
<p>Data modelling in Spreadsheets</p>	<p>The spreadsheet unit for Year 7 takes students from having very little knowledge of spreadsheets to being able to confidently model data with a spreadsheet. They will progress from using basic formulas to writing their own COUNTIF statements. This unit also gives students good skills that they can apply in other subject areas.</p> <p>Students will be able to:</p> <p>Identify columns, rows, cells, and cell references in spreadsheet software.</p>	<p>Students will learn how to:</p> <p>Use formatting techniques in a spreadsheet.</p> <p>Use basic formulas with cell references to perform calculations in a spreadsheet (+, -, *, /).</p> <p>Use the autofill tool to replicate cell data.</p> <p>Create appropriate charts in a spreadsheet.</p>	<p>Students will be assessed by:</p> <p>Creation of a range of spreadsheets.</p>

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	<p>Explain the difference between data and information.</p> <p>Explain the difference between primary and secondary sources of data.</p> <p>Collect data and analyse data.</p>	<p>Use the functions SUM, COUNTA, MAX, and MIN in a spreadsheet.</p> <p>Use a spreadsheet to sort and filter data.</p> <p>Use the functions AVERAGE, COUNTIF, and IF in a spreadsheet.</p> <p>Use conditional formatting in a spreadsheet.</p>	
<p>Gaining support for a cause</p>	<p>This unit encourages students to develop an understanding of information technology and digital literacy by using their skills across the unit to create a blog post about a real-world cause that they are passionate about and would like to gain support for.</p> <p>Students will be able to:</p> <p>Select the most appropriate software to use to complete a task and evaluate formatting techniques to understand why we format documents.</p> <p>Demonstrate an understanding of licensing issues involving online content by applying appropriate Creative Commons licences</p> <p>Demonstrate the ability to credit the original source of an image and evaluate online sources for use in own work.</p>	<p>Students will learn how to:</p> <p>Identify the key features of a word processor.</p> <p>Apply the key features of a word processor to format a document.</p> <p>Select appropriate images for a given context and apply appropriate formatting techniques.</p> <p>Critique digital content for credibility and apply techniques to identify whether a source is credible.</p> <p>Apply referencing techniques and recognise the concept of plagiarism.</p> <p>Construct a blog using appropriate software using credible content and design the layout of the content to make it suitable for the audience.</p>	<p>Students will be assessed by:</p> <p>Creation of a blog.</p> <p>Peer assessment.</p> <p>Topic summative assessment.</p>
<p>Programming using a text</p>	<p>The aim of this unit and the following unit is to build students' confidence and knowledge of the key</p>	<p>Students will learn how to:</p> <p>Set up the Small Basic integrated design environment.</p>	<p>Students will be assessed by:</p> <p>Creation of programs in Small Basic.</p>

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<p>editor (Small Basic)</p>	<p>programming constructs using a text-based programming environment.</p> <p>Students will be able to:</p> <p>Write, test and de-bug simple programs in Small Basic.</p> <p>Understand the use of local and global variables.</p> <p>Use sequence, selection, and iteration in programming.</p> <p>Create programs that accept user input and use conditions to change the output depending on what is entered.</p> <p>Use Turtle to create programs using graphics.</p>	<p>Assign appropriate variables and concepts.</p> <p>Use concatenation to join strings and results of variables to form user friendly output.</p> <p>Identify the causes of errors including run-time, syntax and logic.</p> <p>Apply their knowledge of angles to create simple and complex shapes and drawings using Turtle.</p> <p>Create foreground and background colours of text windows.</p>	
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