



Computing in Key Stage 3

Year 7			
Term	Topic	Content Learnt	High Performing Students will:
1	PC Basics	<ul style="list-style-type: none">• Parts of a computer• Health & Safety• Binary	<p>Be involved in choosing the specification if there is a need to upgrade or renew a computer at home.</p> <p>Use a website such as https://www.pcspecialist.co.uk/build-your-own-pc/ to build a hypothetical PC for a fixed budget.</p> <p>Read and make notes from https://www.bbc.com/bitesize/guides/zxb72hv/revision/1 on digital devices. Try the test.</p>
2	ESafety	<ul style="list-style-type: none">• Digital footprint• Oversharing• Mobile dangers	<p>Visit the website https://www.bbc.com/bitesize/guides/z9p9kqt/revision/1 to read additional material on these topics.</p>
3	Scratch	<ul style="list-style-type: none">• Developing sequences of instructions• Using Selection & loop structures• Variables	<p>Design and make your own computer game using Scratch: https://scratch.mit.edu/</p> <p>Collect feedback from test users and improve the game.</p> <p>Complete online tutorials at https://code.org/learn</p> <p>Try making your own game using Kodu (free software): https://www.kodugamelab.com/</p>
4	Microbits	<ul style="list-style-type: none">• Using sensors• Making simple games• Inputs & outputs	<p>Follow some of the many tutorials available at https://makecode.microbit.org/</p>

			Use the above website to create your own programs for the BBC Microbit. Programs can be tested on-screen. Actual BBC Microbits cost about £13 and are available from a number of resellers, e.g. https://shop.4tronix.co.uk/collections/bbc-micro-bit
5	Flowcharts & Python	<ul style="list-style-type: none"> • Flowchart shapes • Planning algorithms • Introduction to text based programming language 	<p>Download Python onto a PC at home. https://www.python.org/</p> <p>See if you can make your own simple programs.</p> <p>Read additional material on algorithms here: https://www.bbc.com/bitesize/topics/z7d634j</p>
6	Spreadsheets	<ul style="list-style-type: none"> • Basic formulae • Sum, average, min, max functions • Making graphs 	<p>Make your own spreadsheet to help budget for a family trip.</p> <p>Use a spreadsheet to create a graph linked to another school subject.</p>

Year 8			
Term	Topic	Content Learnt	High Performing Students will:
1	Computer Hardware	<ul style="list-style-type: none"> • History of computers • Components: CPU • Input , output, storage devices 	<p>Watch videos on the story of the Enigma Machine and the Colossus computer, e.g. https://www.youtube.com/watch?v=ePRLeB6qyP4 or https://www.youtube.com/watch?v=SUZU1Uqaj3s</p> <p>Read and complete the tests on computer hardware at: https://www.bbc.com/bitesize/topics/zmpsgk7</p>
2	Computational Thinking	<ul style="list-style-type: none"> • Problem solving techniques, • Planning algorithms • Data representation 	<p>Use https://www.bbc.com/bitesize/topics/z7tp34j as a good source of information and videos on this topic.</p> <p>Use a flowchart to help plan a Scratch program.</p> <p>Find out how binary can be used to represent an image or a sound on a computer.</p>
3	Cybercrime	<ul style="list-style-type: none"> • Email scams • Hacking • Protecting personal data • Computer legislation 	<p>Make a leaflet / poster on the threats to data security, giving advice on how to keep data safe.</p>
4	Spreadsheet Model	<ul style="list-style-type: none"> • Profit & loss model for a school event • Data validation and IF 	<p>Research the different types of software available, e.g. cloud based vs. traditional office applications. Discuss the benefits and disadvantages of each.</p>
5	Cryptography & Networks	<ul style="list-style-type: none"> • Caesar cipher • Barcodes • Ecommerce • Network types & devices 	<p>Research how barcodes and QR codes work. Describe where they are used.</p> <p>Research the impact of ecommerce on society</p> <p>Make a list of the devices that are connected to your home network.</p> <p>Describe some of the benefits and risks of using a computer network</p>
6	Web Design	<ul style="list-style-type: none"> • HTML • WYSIWIG software • Design and create web pages 	<p>Make your own website on a subject of your choice.</p>

Year 9			
Term	Topic	Content Learnt	High Performing Students will:
1 & 2	Programming in Python	<ul style="list-style-type: none"> • Using variables, inputs & outputs • Using numbers • Designing programs to solve problems • Selection • Iteration • Arrays • Writing algorithms • Procedures and functions 	<p>Make your own programs independently, perhaps using BBC Microbit.</p> <p>Build a small portfolio of your own Python programs, e.g. making simple games.</p>
3	Networking & the Internet	<ul style="list-style-type: none"> • Understand differences between Internet and WWW. • Know parts of a URL • Describe how DNS works • Describe packet switching • Describe different types of network – LAN, WAN, peer to peer, client-server • Explain advantages and disadvantages of different network topologies • Describe ways that data can be kept secure on a network • Understand some encryption techniques • Create own web pages 	<p>Put together your own presentation on, e.g. how DNS and packet-switching works.</p> <p>Make your own website using HTML and CSS.</p> <p>Create your own computer network at home.</p> <p>Research and present information on how online encryption works.</p>
4	Databases	<ul style="list-style-type: none"> • Use a database to search, sort, organise data • Understand how databases are used by online businesses. 	<p>Independent research into how businesses use online databases.</p> <p>Research and describe some of the laws that control how and what data may be collected and used.</p>

		<ul style="list-style-type: none"> • Design the fields, data types, validation needed to make your own database • Develop user friendly interface for the database using forms • Use a range of techniques to select data from a database 	<p>Use a range of different validation techniques to ensure good quality data is entered.</p> <p>Create their own selection statements using SQL</p>
5	Graphics & Animation	<ul style="list-style-type: none"> • Understand the different kinds of graphic that can be stored on a computer • Use a range of graphical editing techniques to edit images. • Develop understanding of some of the ethical issues surrounding image manipulation • Use software to create your own graphics and animations • Review and evaluate your work. 	<p>Create a range of graphics independently</p> <p>Use more sophisticated animation techniques.</p>
6	Game Design	<ul style="list-style-type: none"> • Design, make, test and evaluate a computer game 	<p>Use Python or a similar text-based programming language to make your own game.</p> <p>Review the game produced, taking into account the needs of the likely target audience.</p>