



Bournville School Curriculum Overview

Computing

Curriculum Intent Statement

It is the aim of the department to enable students to develop skills and knowledge in computer science and digital technologies to prepare them for a future in a world where the use of technology is fully embodied. We wish to enthuse students to have an understanding far deeper than the interface that they currently operate.

We aim to enable students to develop a love of learning for the subject and an understanding that there are no limits to their own development in programming and IT. An important life skill for anyone is to problem solve. Students will be given guidance on how to work safely online so that it will be second nature to carry out all the necessary steps for their own safety as well as those around them.

At KS3 students will be given the opportunity to develop computer coding and digital technology skills. Learning the language of code is an important added bonus as students who develop their coding skills will be able to grasp the magic behind the computers. The content of the curriculum is based on the guidance from the National Curriculum, providing a broad basis of study. This will allow them to take their studies onto KS4 and to further and higher education if they desire and ultimately secure a career within a large range of industries.



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	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS
YEAR 11 CS	<u>3.7.1 Relational databases</u> Relational databases How do relational databases connect with each other? What are fields? What are primary keys? How do databases store data? <u>3.2 Programming</u> Python For and while loops	<u>3.7.2 Structured query language</u> SQL How is SQL used to search through data? How can we write SQL in order to find specific data within relational databases. <u>3.2 Programming</u> Python Lists 2D lists	<u>3.1.1 Representing Algorithms</u> Fundamentals of Algorithms How can algorithms be written to solve computational problems? How can we use pseudocode/flowcharts/tracetables to solve computational problems? <u>3.2 Programming</u> Python Writing/reading from txt files.	<u>3.8 Ethical, legal and environmental impacts of digital technology on wider society, including issues of privacy</u> Ethics What are the ethical, legal and environmental impacts of digital technology on wider society? <u>3.3.6/7 Representing images/sound</u> Images/sound representation How are images and sound stored digitally? <u>3.2 Programming</u> Python Programming challenges	Revision for final exams	
YEAR 10 CS	<u>3.3.1/2 Number bases/converting between</u> Number bases How can computers use numbers?	<u>3.3.3 Units of information</u> Data representation How do computers store images? How can computers store sound files?	<u>3.1.1 Representing algorithms</u> Algorithms How is pseudocode used to solve a problem? How can flowcharts be used to create an algorithm? How do we design a solution?	<u>3.1.3/4</u> Fundamentals of algorithms Searching/sorting algorithms	<u>3.7.1 Relational databases</u> Relational databases How do relational databases connect with each other? What are fields?	<u>3.7.2 Structured query language</u> SQL How is SQL used to search through data?



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	<p>What are the different number bases? How do we convert between denary, binary and hexadecimal? How do computers understand letters? - Character encoding</p> <p><u>3.2 Programming</u> Python Variables and input Datatypes Selection</p>	<p>How do computers compress data?</p> <p><u>3.2 Programming</u> Python For loops While loops Menus Functions Procedures</p>	<p><u>3.2 Programming</u> Python Lists 2D lists</p>	<p>How do computers sort data? How do computers search for data? How do recognise which is the most efficient algorithm?</p> <p><u>3.2 Programming</u> Python Validation Reading/writing from txt files</p>	<p>What are primary keys? How do databases store data?</p> <p><u>3.2 Programming</u> Python Programming challenges</p>	<p>How can we write SQL in order to find specific data within relational databases.</p> <p><u>3.2 Programming</u> Python Programming challenges</p>
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Bournville School Curriculum Overview



YEAR 9	Computer System What is a computer system? What are embedded systems and what is a CPU? Why do we need software? Cyber security What threats do we face? What is social engineering and how do we keep ourselves safe? What are the main forms of malware and how can we protect against it?	RO82: Creating Digital Graphics How can digital graphics be planned for creation?	RO82: Creating Digital Graphics How can digital graphics be created?	HTML What is HTML? How is HTML manipulated in order to create a website?	iDEA Working towards a Bronze, Silver or Star award in digital literacy.	iDEA Working towards a Bronze, Silver or Star award in digital literacy.
YEAR 8	Using computers safely What is e-safety and what pressures do we face online? How do we end cyber bullying? Algorithms What is an algorithm and how do we use them to create pseudocode? How can we use pseudocode to create a computer program? What is sequencing and how do we make a program more efficient?	Programming with Python How do I use Python? What are variables and how do I use them? What is selection and what impact does it have on a program? How do I use iteration to help my programming? How do I combine multiple elements in to one program?	Music Festival Project How can ICT be used to develop solutions to problems? How can you manipulate images and edit videos?	Music Festival Project How are websites developed? What software skills are needed? How can you manipulate images?	Programming with Python How do I use Python? What are variables and how do I use them? What is selection and what impact does it have on a program? How do I use iteration to help my programming? How do I combine multiple elements in to one program?	Flash How are computer animations made? How can software be used to create an animated story?
YEAR 7	Using computers safely	Computer Systems	Boolean Logic	Scratch	Scratch	Interactive Presentations



Bournville School Curriculum Overview



	<p>How to stay safe online? What are online pressures that people face? How do you send emails? History of Computing What is Colossus? Who was Moore and what was his law?</p>	<p>What do input and output devices do? What are the internal components and why do we need them? What is the CPU and how does it work? What is storage and how do the various forms work? What are the advantages and disadvantages of network types?</p>	<p>How is Boolean logic used in circuits and programming? How is binary used by computers?</p>	<p>What is programming? How can visual programming be used to create solutions?</p>	<p>What is programming? How can visual programming be used to create solutions?</p>	<p>Use of PowerPoint in order to create a multimedia interactive presentation. How can PowerPoint be used as a format for a quiz?</p>
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