Computer Science Year 7 Knowledge and Skills

Cantell SCHOOL

Area of study	Your child will … (Knowledge)	Your child will be able to… (Skills)
Autumn Term		
Autumn IT @ Cantell (Introduction to Computer Science)	• Know the different sites and services students can access using RMUnify, e.g., Satchel:One, ParentPay, Gmail, Google Drive, Google Classroom • Understand what emails are, and name the different parts of a standard email template e.g. To, CC, signature, body, attach • Know what files and folders are , and that files are stored in folders • Online safety areas including importance of passwords, two factor authentication, why use backups, implications of terms and conditions, use of incognito mode	• Be able to login to RMUnify, use this to access multiple sites/services. • Send emails to multiple recipients. Attach documents and images to emails when sending them, and start and end emails appropriately. • Create folders and subfolders to store files, with an appropriate naming system • Online safety areas such as online platforms impact on people's views, grooming, consent for forwarding and sharing information, what is digital identity, using advanced searching tools, sitemaps, breadcrumb trails, be aware of licensing, such as creative commons
Spring Term		
Spring 1 Google Workspace (Digital Literacy 1)	• Understand the purpose of Word processors, Spreadsheets and Presentations software. • Be able to identify specific, different word processing, spreadsheet and presentation software.	• Be able to format text/data in word processors, spreadsheets and presentation software. • Be able to identify cells in spreadsheets. • Be able to add text, transitions and animations to presentations.

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Area of study	Your child will … (Knowledge)	Your child will be able to… (Skills)
Spring Term		
Spring 2 Bits & Pieces 1	• Identify the difference between hardware and software. • Identify key pieces of hardware. • Understand that memory is essential for storing information from computers. • Online safety areas including malware and potential hardware issues, like compromised spycams	• Be able to sort different pieces of hardware as either input or output devices. • Explain the difference between primary and secondary memory • Identify and make simple comparisons between some different storage devices.
Summer Term		
Summer 1 Algorithms	Define what an algorithm is. Be able to label and describe the different symbols used in flowchart representations of algorithms. Understand that flowchart algorithms are a tool to help write programmable algorithms.	Be able to read through a simple algorithm and describe what it does. Be able to follow an algorithm with specific inputs and find what the output would be. Attempt writing flowcharts for very simple algorithms or processes.
Summer 2 Programming	Recognise why computer programmes are useful e.g. quicker, good with repetition, accurate, cheaper. Identify the different blocks of code in EduBlocks and how they link to the different flowchart symbols. Know how to run code, and how to recognise when an error is given by the code. Understand which inputs in a piece of code can be edited. Know that Micro:Bits can be used for physical coding	To be able to identify whether a computer programme would be useful or even necessary to solve a problem. To be able to combine blocks in EduBlocks to make sections of code. Be able to combine small sets of code blocks to make very simple pieces of running code. To take existing code and edit it to better understand what the code does. Online safety areas including wellness apps and fitness trackers

Computer Science Year 8 Knowledge and Skills

Cantell SCHOOL

Area of study	Your child will … (Knowledge)	Your child will be able to… (Skills)
Autumn Term		
Autumn Photo Booth Digital Literacy Project	• Understand that photo editing is one of many practical applications of computing. • Know examples of where photo-editing could be used, e.g. magazines, websites, adverts • Be aware that there can be legal implications from using images. • Know key terms like layering, cutting, etc. • Online safety including copyright and ownership, including creative commons licensing, streaming, pirating, torrenting, and fair dealing	• Be able to cut parts of images out • Can use layers to adjust and combine images • Can apply filters and effects to images • Can use search engine settings to find images that can be used without copyright implications • Online safety areas such as deep fake technology, image manipulation, impersonating individuals
SpringTerm		
Spring 1 Algorithms	• Recall the different flowchart symbols, and be able to read flowcharts • Know what a searching algorithm is • Can name the key two examples, and understand that they operate in different ways	• Can apply linear search to a set of data • Can order data and apply binary search on the data • Can describe why algorithms can be useful in the modern world • Online safety areas such as search engine rankings, what influences them, links to fake news, social bots and echo chambers

Computer Science Year 8 Knowledge and Skills

Cantell SCHOOL

Area of study	Your child will … (Knowledge)	Your child will be able to… (Skills)
Spring 2 (into Summer) Python Programming	• Knows that algorithms can support writing code. • Understands that Turtle is a part of Python, and it uses code to create visual images. • Knows how to run Turtle code, and can recall the names of some of the basic functions	• Can apply computational thinking skills to solve drawing problems using Python and Turtle • Can apply loops to complete repetitive processes in a small amount of code
Summer Term		
Summer 2 Networks Bits & Pieces 2	• Know what networks are used for, and be able to name some of the most important types. • Be aware that protocols are required to standardise data sent on networks. • Be able to name and recognise key hardware used in networks	• Choose the best network for different situations, and justify using the advantages and disadvantages of networks. • Can explain why different protocols are needed in different scenarios • Can compare different hardware choices.

Computer Science Year 9 Knowledge and Skills

Cantell SCHOOL

Area of study	Your child will … (Knowledge)	Your child will be able to… (Skills)
Autumn Term		
Autumn Little Budapest Hotel Digital Literacy Projecy	• Identify what the primary purpose of each of the four key pieces of office software are used for (word processors, spreadsheets, publishing software, and presentation software) • Know that format changes are similar across all types of software, and be able to name key types of formatting that is often used • Knows how to refer to cells in spreadsheets.	• Be able to change themes in presentation software, publishing software, and word processors. • Can use titles and headings in word processors to organise and navigate documents • Can enter equations and formulas into spreadsheets • Can animate objects and use transitions in presentation software
SpringTerm		
Spring 1 Algorithms	• Recall the different flowchart symbols, and be able to read flowcharts • Know what a sorting algorithm is • Can name key examples, and understand that they operate in different ways. • Know that different searching algorithms are used in different situations	• Can compare how useful different algorithms are, including how easy they are to code and how quickly they perform. • Can use flowcharts to apply some sorting algorithms to a data set, showing the outcome of each step

Computer Science Year 9 Knowledge and Skills

Cantell SCHOOL

Area of study	Your child will … (Knowledge)	Your child will be able to… (Skills)
	Spring Term	
Spring 2 Python Programming	• Can run Python 3 programs in an IDE • Can recognise error messages in IDE • knows that computer programs can complete many tasks more efficiently than we can • Understand that we need to plan before we code, using pseudocode or flowcharts	• Edit values in code to see how the output changes, and learn more about the code • Can convert simple pseudocode to actual code that will run • Write and run very simple programs • Try editing the correct line of code using error codes
	Summer Term	
Summer 1 Binary & Logic	• Knows that binary numbers use only 1 and 0 as digits, representing on and off in computers. • Aware that computers work in bits and bytes, and that 4/8 bits is an important amount. • Knows that computers use logic gates to combines 1s and 0s/ons and offs.	• Can change between binary and denary values. • Can attempt to convert binary numbers to hexadecimal. • Can recognise the output of a single logic gate given the input • Online safety areas including linking logic gates to advanced internet searches
Summer 2 Ethics in Computing	Know that there can be risks by interacting with others online. Knows that they should go to reliable sites to get important information. Knows what they can do if they are concerned about content they find online Know that there are ethical issues in computing	Can spot red flags that might indicate a website, social media account etc, may be harmful or malicious. Can use reporting mechanisms built in to websites and Use computers to research and present ethical issues Online safety areas such as echo chambers, social bots, deepfakes, fake news, false context