

Year 8 Computer Science Curriculum Map						
Half Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Big Themes	How intelligent are computers? Students will learn about Computer systems including when and where they are used. They will look at Input/CPU/RAM/Output/Storage, Command Line Interface, Boolean Logic, Binary Addition, ASCII, Storing Sound in Binary and machine learning.		How to connect 3 billion people? Students will learn how large computer networks connect the world, how data travels across the internet and awareness of standard protocols employed. They will also gain an understanding of how to use the internet safely and securely, including how to behave respectfully online.		Can computers solve our problems? Students will explore programming in Python as well as physical programming using Raspberry PI devices. Programming fundamentals are covered via an analysis of algorithms. Students will learn programming concepts and learn to use the correct syntax. Concepts including sequence, selection and iteration will be covered.	
Knowledge and skills covered	<ul style="list-style-type: none"> Describe what a general-purpose computer is To know that a computer program is a sequence of instructions To describe the function of hardware components used in computing systems To describe how the hardware components used in computing systems work together in order to execute programs 	<ul style="list-style-type: none"> To perform binary addition To know that text can be stored as binary using a Character set such as ASCII To encode a word using ASCII in binary To know how to sample a sound wave so it is able to be stored as binary Define artificial intelligence and 	<ul style="list-style-type: none"> To define a computer network and explain data transmission To define 'protocol' To list examples of network hardware Compare wired to wireless connections and related technology Define 'bandwidth', understand how 	<ul style="list-style-type: none"> Describe World Wide Web components and how they work together. Critique online services in relation to data privacy Recognise how human errors pose security risks to data Examine how different types of malware causes problems 	<ul style="list-style-type: none"> Describe what algorithms and programs are and how they differ Write simple Python programs that display messages, assign values to variables, and receive keyboard input Locate and correct common syntax errors 	<ul style="list-style-type: none"> Use binary selection (if, else statements) to control the flow of program execution Use multi-branch selection (if, elif, else statements) to control the flow of program execution Describe how iteration (while statements) controls the flow of program execution



	<ul style="list-style-type: none">• Explore how the processor, main memory, and storage interact to execute programs in real scenarios• Define what an operating system is, and provide an overview of what it does• To be able to use basic command line command to interact with a computer system Computer System• To understand simple Boolean Logic, including AND, OR and NOT.	<p>machine learning</p> <ul style="list-style-type: none">• Explore examples of where they are being applied• Teach a machine how to recognise different types of images• Discuss moral issues associated with these technologies	<p>it is measured and its importance using examples.</p> <ul style="list-style-type: none">• Define what the internet is• Explain how data travels across the internet• Describe keywords such as 'protocols', 'packets', and 'addressing'• Explain the difference between the internet, its services, and the World Wide Web• Describe internet services and their usage	<p>for computer systems</p> <ul style="list-style-type: none">• Compare security threats against probability and the potential impact to organisations• Explain how networks can be protected from common security threats	<ul style="list-style-type: none">• Describe the semantics of assignment statements• Use simple arithmetic expressions in assignment statements to calculate values• Receive input from the keyboard and convert it to a numerical value• Use relational operators to form logical expressions	<ul style="list-style-type: none">• Use iteration (while loops) to control the flow of program execution• Use variables as counters in iterative programs• Combine iteration and selection to control the flow of program execution
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Knowledge organisers and more detailed topic resources can be found on all student Google Classrooms



Year 8 Key 'Subject' Assessment Dates 2021-22		
Data Drop 1	Data Drop 2	Data Drop 3
Revision Focus: Unit 8.1 Assessments: Online Assessment - Mixture of multiple choice questions and written responses.	Revision Focus: Unit 8.2 Assessments: Online Assessment - Mixture of multiple choice questions and written responses.	Revision Focus: Unit 8.3 Assessments: Online Assessment - Mixture of multiple choice questions and written responses.