

COMPUTING CURRICULUM MAP

Year 7



	Topic	Core declarative knowledge: what should students know?	Core procedural knowledge: what should students be able to do?
Module 1	Unit 1	<ul style="list-style-type: none"> • What are the dangers of being online? • What is a digital footprint? • What is personal information? • What is clickbait? • What is screen time? • What does location-aware applications mean? • What is cyber bullying? and how to deal with it? • What are the issues with online gaming? • Who to contact if there are any concerns about online activity. • Navigating the school system and exploring the Chromebook • Understanding the full capabilities of google applications (docs, sheets, etc.) • How to use search 	<ul style="list-style-type: none"> • Understand the dangers of the internet and build resilience online • To be able to identify different forms of cyber bullying and how to stop it • Know how to handle malicious scenarios that might occur whilst taking part in online activities • Understand and effectively use the technology available to pupils • Effective use of the technology used within LAB • Search the internet efficiently.
Module 2	Unit 2	<ul style="list-style-type: none"> • What is hardware? • What is software? • What are the peripherals of the computer? • What is an input? • What is an output? • What is a CPU? • What is the fetch-decode-execute cycle? • What is RAM? • What is ROM? • What is the difference between the two memory storages? 	<ul style="list-style-type: none"> • To be able to describe what Computer hardware is • To be able to give detailed description of what the peripherals of a computer are and identify the difference between input and output peripherals • To be able to identify the functions of the CPU • To be able to describe how the CPU's fetch-decode-execute cycle performs all operations on our devices • To be able to understand the difference between RAM and ROM storage and the features of both types of data storage.
Module 3	Unit 3	<ul style="list-style-type: none"> • What is Binary? • What is Denary? • What is base-2 and base-10 number systems? • Why do we need to use Binary? • How do we convert Binary to Denary? • What is ASCII? • What is a bitmap image? • How do we calculate file sizes for images? 	<ul style="list-style-type: none"> • To be able to describe the difference between Binary and Denary • To have an understanding of how our base-10 number system is different to base-2 number system • To be able to understand how computer systems use binary to translate complex information into a format it can understand • To be able to convert denary to binary and binary to denary • To understand how binary numbers are able to represent alpha-numerical data that humans can understand • To be able to understand how binary is used to represent images • To be able to calculate file sizes based on the amount of information that is in an image.

COMPUTING CURRICULUM MAP

Year 7



	Topic	Core declarative knowledge: what should students know?	Core procedural knowledge: what should students be able to do?
Module 4	Unit 4	<ul style="list-style-type: none"> • What is programming? • What is computational thinking? • What is an algorithm? • What is decomposition in computing? How does it help us with problem solving? • What is abstraction? • What is sequencing? • What is iteration? • What is selection? • What is pseudocode? How can it be used to solve problems? 	<ul style="list-style-type: none"> • To be able to understand how humans use high-level coding language to create solutions to problems • To be able to describe what computational thinking is and how it can be used to solve problems • To be able to break down problems logically and efficiently to produce useful solutions • To be able to write algorithms that solve problems • To be able to understand the use of sequencing when writing algorithms • To be able to apply iteration and selection to algorithms, making them more efficient.
Module 5	Unit 5	<ul style="list-style-type: none"> • What is coding? • What are programming languages? • What is Scratch? • What does iteration look like in programming? • What does selection look like in programming? • What are variables and how do you use them? • What are sub-routines and how do you use them? • What are operators and how do you use them? 	<ul style="list-style-type: none"> • To be able to understand what coding is and how humans develop high-level programming languages to manipulate computer devices • To understand basic functions in Scratch and how to use Computing conceptions in scratch to make playable games • To be able to create animations in Scratch.
Module 6	Unit 6	<ul style="list-style-type: none"> • What are block-based coding languages? • What are text-based coding languages? • What is Python? • How do you use the main coding concepts (iterations/selection/variables/sub-routines/operators) in Python? 	<ul style="list-style-type: none"> • To be able to understand what coding is and how humans develop high-level programming languages to manipulate computer devices • To understand basic functions in Scratch and how to use Computing conceptions in scratch to make playable games • To be able to create animations in Scratch.

COMPUTING CURRICULUM MAP

Year 8



	Topic	Core declarative knowledge: what should students know?	Core procedural knowledge: what should students be able to do?
Module 1	Digital Literacy & E-Safety	<ul style="list-style-type: none"> How can you protect yourself online and what are the dangers? What is a digital footprint? What is cyber-bullying? Why do people cyber-bully? What is online grooming? What are the dangers to online gaming? How can you protect your online identity and privacy? Can you identify the risks of social media? 	<ul style="list-style-type: none"> To be able to protect oneself from different forms of danger that may occur online To be able to identify the dangers and react appropriately through techniques and advice To develop essential skills that protect users from content that may try to use personal data for malicious purposes To be able to access social media and to be able to identify risks that come with having social media accounts How to protect your online identity and navigate it safely.
Module 2	System Architecture	<ul style="list-style-type: none"> What is hardware? What are the peripherals of the computer? What is an input? What is an output? What is software? What is the difference between volatile and non/volatile information? What is RAM? What is ROM? What is the difference between the two memory storages? What is secondary storage? How is secondary storage different to primary storage? How can the data be read? 	<ul style="list-style-type: none"> To be able to describe what Computer hardware is To be able to give detailed description of what the peripherals of a computer are and identify the difference between input and output peripherals To be able to understand the difference between RAM and ROM storage and the features of both types of data storage To be able to understand that volatile data will be lost when there is no power supply opposed to data being stored when it is non-volatile and how this connects to RAM/ROM To be able to understand how data that is loaded into RAM can be edited and written as opposed to ROM that can only be read.
Module 3	Data Representation	<ul style="list-style-type: none"> What is Binary? What is Denary? What is base-2 and base-10 number systems? How do we convert Binary to Denary? How do we perform binary addition? What is ASCII? What is a bitmap image? How do we convert sound to binary and compress that data? 	<ul style="list-style-type: none"> To be able to describe the difference between Binary and Denary To be able to understand how computer systems use binary to translate complex information into a format it can understand To be able to convert denary to binary and binary to denary To be able to perform simple addition operations in binary To understand how binary numbers are able to represent alpha-numerical data that humans can understand To be able to understand how binary is used to represent images To be able to describe how sound is represented in binary and how we compress such large amounts of data.

COMPUTING CURRICULUM MAP

Year 8



	Topic	Core declarative knowledge: what should students know?	Core procedural knowledge: what should students be able to do?
Module 4	Algorithms	<ul style="list-style-type: none"> • What is computational thinking? • What is an algorithm? • What is decomposition in computing? How does it help us with problem solving? • What is abstraction? • What is pseudocode? How does it help us breakdown problems? • What are flowcharts? How can we use them to think computationally? 	<ul style="list-style-type: none"> • To be able to understand how humans use high-level coding language to create solutions to problems • To be able to describe what computational thinking is and how it can be used to solve problems • To be able to break down problems logically and efficiently to produce useful solutions • To be able to write algorithms that solve problems • To be able to understand the use of sequencing when writing algorithms • To be able to efficiently use pseudocode and flowcharts to effectively solve a problem.
Module 5	Programming techniques	<ul style="list-style-type: none"> • What is coding? • What are programming languages? • What is Scratch? • What is Python? • What is iteration? • What is Selection? • What is a variable? • What is a sub-routine? • What are operators? 	<ul style="list-style-type: none"> • To be able to understand what coding is and how humans develop high-level programming languages to manipulate computer devices • To understand basic functions in Scratch and how to use Computing conceptions in scratch to make playable games • To be able to create animations in Scratch.
Module 6	Programming techniques	<ul style="list-style-type: none"> • What are block-based coding lanuages? • What are text-based coding languages? • What are data types? • How do you use the main coding concepts (iterations/selection/variables/sub-routines/operators) in Python? • What are lists? • What is debugging? 	<ul style="list-style-type: none"> • To be able to describe the difference between block-based coding and text-based coding • To be able to understand the features of the two and highlight the benefits of using one over the other • To have a basic understanding of how to write code using the Python coding language • To be able to solve real-world computational problems, using coding concepts and computational thinking • To be able to understand and manipulate lists • To be able to identify and correctly use different data types • To be able to understand what debugging is effectively fix code so it functions.

COMPUTING CURRICULUM MAP

Year 9



	Topic	Core declarative knowledge: what should students know?	Core procedural knowledge: what should students be able to do?
Module 1	Digital Literacy & E-Safety	<ul style="list-style-type: none"> How can you ensure you source information from reliable sources? What is false information? What is bias information? What does up-to-date information mean and how can we check? How can you recognise information is trustworthy online? What is spam? What is malware? What is phishing? How might someone steal your identity online? 	<ul style="list-style-type: none"> Enhancing learners' ability to ensure all information gathered through online sources have been authentically analyzed to be sure it is reliable To recognise malicious content and sources that may disguise themselves through user friendly interfaces and fake digital content.
Module 2	System Architecture	<ul style="list-style-type: none"> What is the purpose of the CPU? What is the Fetch-Decode-Execute cycle? Where is data stored? What is the difference between Input and Output peripherals? What is the difference between RAM and ROM? What is Von Neumann architecture? 	<ul style="list-style-type: none"> To be able to give detailed description of what the peripherals of a computer are and identify the difference between input and output peripherals To be able to identify the functions of the CPU To be able to describe how the CPU's fetch-decode-execute cycle performs all operations on our devices To be able to understand the difference between RAM and ROM storage and the features of both types of data storage To be able to give a detailed description of what Von Neumann architecture is.
Module 3	Data Representation	<ul style="list-style-type: none"> What is Binary? What is Denary? How do we convert number from binary to denary and vice versa? What is a Bit? What is a Nibble? What is a Byte? What is a Kilobyte? What is a Megabyte? What is a Gigabyte? What is a Terabyte? What is ASCII? How do we represent images in binary? How do we represent sound in binary? How can we compress data? 	<ul style="list-style-type: none"> To be able to describe the difference between Binary and Denary To be able to understand how computer systems use binary to translate complex information into a format it can understand To be able to convert denary to binary and binary to denary To be able to identify and distinguish different amounts of data To understand how binary numbers are able to represent alpha-numerical data that humans can understand To be able to understand how binary is used to represent images To be able to describe how sound is represented in binary and how we compress such large amounts of data.

COMPUTING CURRICULUM MAP

Year 9



	Topic	Core declarative knowledge: what should students know?	Core procedural knowledge: what should students be able to do?
Module 4	Algorithms	<ul style="list-style-type: none"> • What is Abstraction? • What is Decomposition? • What is an Algorithm? • What is a Binary search? • What is a Linear search? 	<ul style="list-style-type: none"> • To be able to understand how humans use high-level coding language to create solutions to problems • To be able to describe what computational thinking is and how it can be used to solve problems • To be able to break down problems logically and efficiently to produce useful solutions • To be able to write algorithms that solve problems • To be able to understand the use of sequencing when writing algorithms • To be able to efficiently use pseudocode and flowcharts to effectively solve a problem • To be able to create well sequenced flowchart's to solve problems.
Module 5	Programming techniques	<ul style="list-style-type: none"> • What is coding? • What are programming languages? • What is Python? • What is iteration? • What is Selection? • What is a variable? • What is a sub-routine? • What are operators? 	<ul style="list-style-type: none"> • To be able to understand what coding is and how humans develop high-level programming languages to manipulate computer devices • To be able to effectively use coding conceptions to solve problems and create games in Python.
Module 6	Programming techniques	<ul style="list-style-type: none"> • What are constants? • What are inputs and outputs? • What are count and condition controlled iteration? • What are procedures and functions? • What is debugging? • What is a syntax error? • What is a logical error? 	<ul style="list-style-type: none"> • To be able to use a high-level programming language to explore complex coding concepts • To be able to understand how input's and outputs can be used in coding • To be able to understand how conditional loops and counted loops can be used to have greater control over events and functions • To be able to separate code and call on significant functions when needed • To be able to recognise certain errors in code and rectify those errors.