

Year 9 Computer Science Curriculum Overview

Computer Systems	Computer Systems	Programming	Graphics
Classify the components of a computer with respect to: input, output and storage.	Understand the purpose of data in computer systems being represented in binary form	To use outputs in Small Basic	Plan a graphic with full annotation.
Identify the basic function of the common internal components of a computer: • motherboard, CPU, RAM, BIOS, hard disks	Understand simple Boolean logic and some of its uses in programming	To use inputs in Small Basic	
Identify the basic functions of common peripherals: <ul style="list-style-type: none"> • camera • keyboard • microphones • monitor • mouse • scanner • headphones • speakers • printer. 	Create the basic truth tables for the output of the logic gates: AND, OR, NOT	To use selection in Small Basic	
	Understand and evaluate the following Boolean operators: <ul style="list-style-type: none"> • equal to ($a == b$) • not equal to ($a != b$) • less than ($a < b$) • greater than ($a > b$) 	To use iteration in Small Basic with for loops	Use Photoshop/Illustrator to create a graphic for a DVD cover.
		To use iteration in Small Basic with while loops	
		Complete coding tasks using inputs, outputs, selection and iteration.	
	Understand and be able to use the following mathematical symbols:		Use a range of tools to create a graphics

	<ul style="list-style-type: none"> • + (add) • - (subtract) • * (multiply) • /(divide). 		Improve a graphic
			Evaluate a graphic.
Identify a range of operating systems, including Open Source and Proprietary	Identify the success criteria of a problem		
	Create basic plans to solve coding problems		
State why operating systems are needed	Sequence instructions in a logical way		
State the basic functions of an operating system: <ul style="list-style-type: none"> • management of software • management of hardware (through device drivers) • management of CPU and memory 	Identify potential difficulties		
	Identify ways to check that a solution works		
	Understand how numbers are represented in binary		
	Carry out simple operations on binary numbers using binary addition (4 bit)		
Identify examples of application software and system software	Conversion between binary and decimal from 0 to 15		
State the purpose of different system utilities:	Produce algorithms using flow charts		

<ul style="list-style-type: none"> • computer security (antivirus, anti-malware, anti-spyware and firewalls), • disk management (formatting, file transfer, and defragmentation), and back up • system maintenance (system information and diagnosis, system clean-up tools, automatic updating) 	<p>Use and be familiar with the flow chart shapes for:</p> <ul style="list-style-type: none"> • Start/Stop • Process • Input/Output • Decision • Flow Lines. 		
Identify a range of common application software packages and	explain what a variable is used for (i.e. storing data within a		
understand their uses, such as:	program)		
<ul style="list-style-type: none"> • Image Processing 	perform basic mathematical or logical calculations on variables		
<ul style="list-style-type: none"> • Word Processing 	explain and show how input may be captured and assigned to a variable for use/storage within a program		
<ul style="list-style-type: none"> • Spreadsheet 	program)		
<ul style="list-style-type: none"> • Web Browsers 	explain and show how to output text or movement on screen		
<ul style="list-style-type: none"> • presentation 	be able to use a range of data types including: <ul style="list-style-type: none"> • integers 		

• Database	be able to use a range of data types including: • integers • real numbers		
• Integrated Development Environment (IDE).	be able to use a range of data types including: • integers • real numbers • text		
	be able to use a range of data types including: • integers • real numbers		
describe the purpose of RAM	• Boolean understand that instructions are executed in the sequence they are written		
describe the purpose of Cache			
describe the purpose of ROM	write programs with instructions in the correct order		
explain the purpose of secondary storage	be able to identify errors in the order of a sequenced set of steps		
	explain and identify how programs can be made to execute code		
give examples of common types of secondary storage devices and	based on a choice (true or false) e.g. IF statements		
key characteristics:	understand what is meant by a loop		
• Magnetic (Hard Disk Drive, Tape Drive)	use a loop in a program to execute statements multiple times		
• Optical (CD ROM, DVD)	(WHILE loop and FOR loop)		

<ul style="list-style-type: none"> Flash Memory (Solid State Drive, SD Card and USB Pen Drive) 	use common arithmetic operators within a program		
	use common Boolean logic operators within a program		
	explain why comments in code are useful		
identify appropriate use of secondary storage devices with respect to:	show examples of commenting in code.		
<ul style="list-style-type: none"> capacities 	understand that computer memory or storage are measured using		
<ul style="list-style-type: none"> speed 	different units:		
<ul style="list-style-type: none"> portability 	<ul style="list-style-type: none"> bit 		
<ul style="list-style-type: none"> cost. 	<ul style="list-style-type: none"> nibble 		
	<ul style="list-style-type: none"> byte 		
describe Computer Science technologies with consideration of:	<ul style="list-style-type: none"> kilobyte 		
<ul style="list-style-type: none"> moral issues, for example: 	<ul style="list-style-type: none"> megabyte 		
replacing of humans with computers	<ul style="list-style-type: none"> gigabyte 		
changing the shape of the world	understand the purpose of data compression in terms of:		
spreading information and right of privacy	<ul style="list-style-type: none"> transmission of data 		
	<ul style="list-style-type: none"> storage 		

• legal issues, for example:	understand how data can be represented digitally, in the form of binary digits for:		
use of computer to commit crime (hacking)			
risks of access to people's data	• text		
	• sounds		
• environmental issues, for example:	• pictures.		
recycling and waste			
energy use			
improvements in manufacturing			
• differences between cost, support, and customisation			
understand that laws exist that affect and control computer use			
state the purpose of each of the following legislations:			
• Data Protection Act (1998)			
• Computer Misuse Act (1990)			

• Copyright, Design and Patents Act (1998).			
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