

Computing Year 7 Curriculum Map



YEAR 7	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Curriculum Content	<p>Unit 1 Computers – Computer Hardware link to KS3 Programme of Study.</p> <p>Composite = Understand how computer hardware functions in digital devices: This unit introduces pupils to the hardware items needed to run a computing device such as a games console. Pupils will explore important hardware items inside a computing device that allows the device to function (work). This unit will give pupils a good understanding of how devices such as smart phones, tablets, laptops etc. work and how the hardware functions the same in every device too.</p> <p>Component 1.1 - Investigating internal hardware such as the CPU, RAM & Hard Drive</p> <p>Component 1.2 - How hardware functions exploring the Fetch, decode & execute cycle.</p> <p>Component 1.3 - Investigating primary memory types such as RAM, Cache Memory and ROM</p> <p>Component 1.4 - Investigating internal and external secondary storage types such as HDD, SSD and Flash memory</p> <p>Component 1.5 - Investigating other types of computing devices such as embedded systems</p> <p>Component 1.6 - Investigate the developments of computer hardware over time.</p>	<p>Unit 2 Data – Data Representation Binary & Denary link to KS3 Programme of Study.</p> <p>Composite = Understand how hardware communicates with each other and how devices understand inputted data: In the last unit pupils learnt about the hardware components needed to run a computing device. In this unit pupils will explore the language of a computing device (binary), how this language was developed, how computing devices understand human language such as decimal numbers by using conversion techniques. Pupils will also learn how computing devices make basic decisions by exploring logic gates.</p> <p>Component 2.1 What is binary & denary?</p> <p>Component 2.2 Carrying out binary and denary conversions</p> <p>Component 2.3 Adding binary numbers together</p> <p>Component 2.4 Investigating logic gates (AND, OR & NOT)</p>	<p>Unit 3 Internet and Communications – 3.1 Network Types and Topologies (Internet) link to KS3 Programme of Study.</p> <p>Composite = Understand different types and layouts of networks: In the previous two units’ pupils learnt about the hardware needed for a computer device to function, pupils also learnt about the language (binary) computers use too communicate with its hardware and how it makes simple decisions using logic gates too. This unit will introduce pupils to networks, which is what computer devices use to communicate with each other. This unit will introduce pupils to network types, the wires used for connecting devices together and different network layouts (topologies).</p> <p>Component 3.1.1 Investigating network types (LAN, WAN & VPN)</p> <p>Component 3.1.2 Investigating Transmission media (Ethernet, fibre optics and Wi-Fi)</p> <p>Component 3.1.3 Investigating network topologies (star, mesh & ring)</p>	<p>Unit 3 Internet and Communications – 3.2 E-Safety Cyberbullying (Communications) link to KS3 Programme of Study.</p> <p>Composite = Understand the effects of Cyberbullying and develop a media product using a range of IT skills: In previous units’ pupils have learnt about the hardware needed for a computer device to function, pupils also learnt about the language (binary) computers use to communicate with its own hardware and how it made simple decisions using logic gates. In the first part of unit three pupils learnt about how computer devices communicate with each using networks. This part of the unit pupils will develop their IT skills by using digital devices to communicate information by learning to plan a digital product and also develop an understanding of a current e-safety issue cyberbullying.</p> <p>Component 3.2.1 Cyberbullying and product requirements (graphics poster)</p> <p>Component 3.2.2 Cyberbullying and product planning - visualisation diagram (graphics poster)</p> <p>Component 3.2.3 Cyberbullying and collecting assets (searching and storing)</p> <p>Component 3.2.4 Cyberbullying and graphic poster design (graphics software)</p> <p>Component 3.2.5 Cyberbullying and advanced skills design (graphics software)</p>	<p>Unit 4: Algorithms & Programming: Algorithms & Coding – Scratch & Python link to KS3 Programme of Study.</p> <p>Composite = Understand how to construct different algorithms and programming code for various problems using a range of constructs: This year pupils have learnt about the hardware needed for a computer device to function, pupils also learnt about the language (binary) computers use too communicate with its hardware and how it makes simple decisions using logic gates too. Pupils have also learnt about how computing devices communicate with each other using networks and developed IT skills to create a digital product about a current e-safety issue cyberbullying. This unit pupil’s will learn to develop their programming skills by learning about algorithms (planning a program by creating flowcharts and pseudocode). Pupils will also develop coding skills using Scratch coding blocks and Python (text base language) to create programs.</p> <p>Component 4.1 Creating algorithms – Flow charts (variety of constructs)</p> <p>Component 4.2 Creating algorithms – Pseudo code (variety of constructs and the use of constants)</p> <p>Component 4.3 Developing programming techniques – coding basic programs (use of various constructs) in Scratch & Python</p>	<p>Unit 4: Algorithms & Programming: Algorithms & Coding – Scratch & Python link to KS3 Programme of Study.</p> <p>Composite = Understand how to construct different algorithms and programming code for various problems using a range of constructs: This year pupils have learnt about the hardware needed for a computer device to function, pupils also learnt about the language (binary) computers use too communicate with its hardware and how it makes simple decisions using logic gates too. Pupils have also learnt about how computing devices communicate with each other using networks and developed IT skills to create a digital product about a current e-safety issue cyberbullying. This unit pupil’s will learn to develop their programming skills by learning about algorithms (planning a program by creating flowcharts and pseudocode). Pupils will also develop coding skills using Scratch coding blocks and Python (text base language) to create programs.</p> <p>Component 4.4 Developing programming techniques – coding advanced programs (use of various constructs) in Scratch & Python</p> <p>Component 4.5 Creating a programming project in Scratch/Python.</p>
Prior knowledge and skills (from previous year / key stage)	Pupils maybe be aware of keywords of some of the hardware components inside a computing device. Pupils should be aware of hardware that controls digital devices such as input and output devices i.e. keyboard, mouse and touchscreen.	Pupils may recognise keywords such as binary (byte) and denary (decimal). Pupils will be aware of the 10 base number system. Pupils will have no prior knowledge of conversions, adding binary numbers and logic gates.	Pupils maybe aware of how devices communicate with each other over a network. Pupils will have some knowledge of the internet. Pupils will have no prior knowledge of network types or topologies.	Pupils will have some awareness of cyberbullying. Pupils may have some prior IT application skills i.e. inputting text, inserting images etc. Pupils will have no prior knowledge of client requirements or planning documents such as visualisation diagrams.	Pupils may have some understanding of basic algorithms and constructs. Pupils may recognise some constructs i.e. sequence and selection and flowcharts. Pupil will have no prior knowledge of pseudo code.	Pupils may have some skills in creating simple programs using a graphics based coding language. Pupils will have no prior knowledge of text based programming languages such as Python.

Vocabulary / Key Subject Terminology	Hardware, Central Processing Unit (CPU), Random Access Memory (RAM), Read Only Memory (ROM), Cache Memory, Hard Drive, Solid State Drive, Flash Memory, Fetch, Decode, Execute, Cycle, Embedded Systems, Functions, Process, Temporarily, Permanently, Store, Data, Instructions	Language, Binary, Byte, Denary, Decimal, Number, Conversion, Adding, Logic Gates, Truth Tables	Networks, Devices, Local Area Network, Wide Area Network, Virtual Private Network, Transmission Media, Ethernet, Fibre Optic, Wifi, Connections, Topologies, Star, Mesh and Ring	E-Safety, Cyberbullying, Social Media, Online, Bullying, Upset, Hurt, Prevent, Support, Digital, Product, Poster, Inform, Visualisation Diagram, Planning, Assets, Store, Searching, Software.	Algorithms, Pseudo code, Flow charts, Sequence, Selection, Iteration, Loops, Blocks, Scratch, Python, Programming, Techniques, Problem Solve, Variable, Constant, Program and Code.	Algorithms, Pseudo code, Flow charts, Sequence, Selection, Iteration, Loops, Blocks, Scratch, Python, Programming, Techniques, Problem Solve, Variable, Constant, Program and Code.
Assessment 1	Baseline computing assessment focus on KS2 National Curriculum knowledge and AO1, AO2 and AO3.	AO1 and AO2 assessment - binary/denary conversion and adding binary numbers (SA)	Practical project – Network Theory (AO1 and AO2)	Practical project – Cyberbullying Poster (AO4 & AO5) and Extended writing piece – Planning documentation Mind Map/Visualisation Diagram (AO4 & AO5)	AO1 and AO2 assessment – Algorithms (Flowchart/Pseudo code) Test (SA)	Practical project – Scratch/Python coding project (AO3)
Assessment 2	Practical project – Computer Hardware Theory (AO1, AO2 and AO3) and Extended writing piece – Investigating the developments of computer hardware (AO1 & AO2)	AO1 and AO2 assessment Logic Gates (SA) AP1 computing assessment focusing on KS2 National Curriculum knowledge and AUT1/AUT2 theory		AP2 computing assessment focusing on KS2 National Curriculum knowledge and AUT1/AUT2/SPR1 theory		AP3 computing assessment focusing on AUT1/AUT2/SPR1/SPR2/SUM1 and SUM2 theory
Extra-Curricular Offer	Additional resources promoted – Seneca and BBC Bitesize for additional information.	Additional resources promoted – Seneca and BBC Bitesize for additional information.	Additional resources promoted – Seneca and BBC Bitesize for additional information.	Safer Internet Day.	Coding lunchtime club, iDEA and Cybersecurity programmes.	Coding lunchtime club, iDEA and Cybersecurity programmes.
Time Allocation	Autumn 1, 7 weeks, 1 lesson per week	Autumn 2, 5 weeks, 1 lesson per week	Spring 1, 4 weeks, 1 lesson per week	Spring 1 & Spring 2, 8 weeks, 1 lesson per week	Summer 1, 6 weeks, 1 lesson per week	Summer 2, 6 weeks, 1 lesson per week