Computing Whole School Curriculum Overview

Computing – Coding

Rationale
Coding is a basic literacy in the digital age, and it is important for children to understand and be able to work with and understand the technology around them. Having children learn coding at a young age prepares them for the future. Understanding computers and learning the basics of coding helps children to develop an appreciation of how things work. It also teaches them how software engineers use maths in order to solve problems in a logical and creative way.

Learning

Early Years will be taught to:	In Year 1 pupils will be taught to:	In Year 4 Pupils will be taught to:
Completes a simple program on a computer Uses ICT hardware to interact with age-appropriate computer software Recognises that a range of technology is used in places such as homes and schools (ELG)	Predict the behaviour of simple programs Understand what algorithms are and how they are implemented on digital devices	Decompose programs into smaller parts Use logical reasoning to detect and correct errors in algorithms and programs Select, use and combine a variety of software, systems and content that accomplish given goals
	In Year 2 pupils will be taught to:	**In Year 5 pupils will be taught to:**
	Use logical reasoning to predict the behaviour of simple programs Create simple programs	Design, input and test an increasingly complex set of instructions to a program or device

Selects and uses technology for particular purposes (ELG)	Create and debug simple programs	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems
	Debug simple programs by using logical reasoning to predict the actions instructed by the code	Design, write and test simple programs that follow a sequence of instructions or allow a set of instructions to be repeated
	Understand that programs execute by following precise and unambiguous instructions	Design write and test simple programs with opportunities for selection, where a particular result will happen based on actions or situations controlled by the user
		Use logical reasoning to explain how increasingly complex algorithms work to ensure a program's efficiency
	In Year 3 pupils will be taught to:	**In Year 6 pupils will be taught to:**
	Design, write and debug programs that control or simulate virtual events	Include use of sequences, selection and repetition with the hardware used to explore real world systems
	Use logical reasoning to explain how some simple algorithms work	Solves problems by decomposing them into smaller parts
		Create programs which use variables
		Use variables, sequence, selection, and repetition in programs
		Use logical reasoning to explain how increasingly complex algorithms work and to detect and correct errors in algorithms and programs efficiently

Key Vocabulary								
Algorithm	Coding	Debug	Sequence	Problem Solving	Reasoning	Programming	menu	logic
steps	instructions	initiate						

Computing – Computers

Rationale
Pupils need to be taught about the processes and things that a computer can input and output. An input is data that a computer receives. An output is data that a computer sends. Any input that a computer receives must be digitised.   Often data has to be converted back to an analogue format when it's output, for example the sound from a computer's speakers.

Learning

Early Years will be taught to:	In Year 1 pupils will be taught to:	In Year 4 Pupils will be taught to:
Completes a simple program on a computer

Uses ICT hardware to interact with age-appropriate computer software

Recognises that a range of technology is used in places such as homes and schools (ELG)

Selects and uses technology for particular purposes (ELG) | Recognise common uses of information technology in the home and school environment | Use other input devices such as cameras or sensors |
	In Year 2 pupils will be taught to:	In Year 5 pupils will be taught to:
	Recognise common uses of information technology beyond school	
	In Year 3 pupils will be taught to:	In Year 6 pupils will be taught to:
	Recognise familiar forms of input and output devices and how they are used	

	Make efficient use of familiar forms of input and output devices	

Key Vocabulary

Input devices: Mouse, keyboard, GPS, camera, microphone, etc . Basically any device that responds to signals from the outside.
Output: Speaker, printer, monitor, LEDs, fan, radio transmitter, etc

Computing – E Safety

Rationale

It is important that children understand enough about the Internet to keep themselves safe from harm. It is equally important that they are equipped with the skills they need to keep themselves safe so they can experience the Internet positively and responsibly.
Digitally literate students are confident using digital content and tools in their learning. Digital literacy skills enable them to find and access digital content that is fit for purpose and analyse and combine information to develop their own understandings.

Learning

Early Years will be taught to:	In Year 1 pupils will be taught to:	In Year 4 Pupils will be taught to:
Completes a simple program on a computer Uses ICT hardware to interact with age-appropriate computer software	Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies	Use technology responsibly and understand that communication online may be seen by others Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies

Recognises that a range of technology is used in places such as homes and schools (ELG) Selects and uses technology for particular purposes (ELG)	**In Year 2 pupils will be taught to:** Use technology safely and keep personal information private	**In Year 5 pupils will be taught to:** Understand the need to only select age appropriate content
	In Year 3 pupils will be taught to: Use technology safely and respectfully, keeping personal information private Use technology safely and recognise acceptable and unacceptable behaviour	**In Year 6 pupils will be taught to:** Identify a range of ways to report concerns about content and contact in and out of school

Key Vocabulary

Cybersafety, friends, rules, E-Safety, bully, internet, learning, password, personal, social, careful, reporting, cyberbullying, firewall, block, spam, virus, spyware, adware,

Computing – Net Searching		
Rationale		
Being able to search the Internet is a key skill not only for education but for life. It can improve the quality of education in many ways. It opens doorways to a wealth of information, knowledge and educational resources, increasing opportunities for learning in and beyond the classroom. Teachers also use online materials to prepare content for lessons and to extend the range of learning for the pupils. Providing home internet access to children improves their digital proficiency.		
Learning		
Early Years will be taught to:	**In Year 1 pupils will be taught to:**	**In Year 4 Pupils will be taught to:**

Completes a simple program on a computer Uses ICT hardware to interact with age-appropriate computer software Recognises that a range of technology is used in places such as homes and schools (ELG) Selects and uses technology for particular purposes (ELG)		Understand how results are selected and ranked by search engines
	In Year 2 pupils will be taught to:	**In Year 5 pupils will be taught to:** Use filters in search technologies effectively Use filters in search technologies effectively and appreciates how results are selected and ranked
	In Year 3 pupils will be taught to: Use simple search technologies Use simple search technologies and recognise that some sources are more reliable than others	**In Year 6 pupils will be taught to:** Be discerning when evaluating digital content Use filters in search technologies effectively and is discerning when evaluating digital content

Key Vocabulary

Search engine   filtering   cache   hyperlink   hypertext   files   searching   URL   Address   title   page   rank   blurb   snippet

Computing – Networks

Rationale

Pupils should be taught to understand computer networks including the internet. They need to know how they can provide multiple services, such as the world wide web and the opportunities they offer for communication and collaboration.

Learning

Early Years will be taught to:	In Year 1 pupils will be taught to:	In Year 4 Pupils will be taught to:
Completes a simple program on a computer		Understand what servers are and how they provide services to a network
Uses ICT hardware to interact with age-appropriate computer software	In Year 2 pupils will be taught to:	In Year 5 pupils will be taught to:
Recognises that a range of technology is used in places such as homes and schools (ELG)		Begin to use internet services to share and transfer data to a third party
Selects and uses technology for particular purposes (ELG)	In Year 3 pupils will be taught to:	In Year 6 pupils will be taught to:
	Understand that computer networks enable the sharing of data and information	Understand how computer networks enable computers to communicate and collaborate
	Understand that the internet is a large network of computers and that information can be shared between computers	Begin to use internet services within his/her own creations to share and transfer data to a third party

Key Vocabulary

Switch   Wireless Access Point   Router   Firewall   Wired Network   Wireless Network   Laptops   Computers or PCs
iPads or Android Tablets

Computing – Using computer		
Rationale		
The curriculum provides pupils with the opportunity to access the Internet. It will help them to develop knowledge about the current technology. The use of computers is necessary because it helps children to maintain the real world opportunities.		
Learning		
Early Years will be taught to:	**In Year 1 pupils will be taught to:**	**In Year 4 Pupils will be taught to:**
Completes a simple program on a computer Uses ICT hardware to interact with age-appropriate computer software Recognises that a range of technology is used in places such as homes and schools (ELG) Selects and uses technology for particular purposes (ELG)	Use technology purposefully to create digital content	With support select and use a variety of software on a range of digital devices With support select, use and combine a variety of software on a range of digital devices to accomplish given goals
	In Year 2 pupils will be taught to:	**In Year 5 pupils will be taught to:**
	Use technology purposefully to create, organise, store, manipulate and retrieve digital content Use technology purposefully to create digital content comparing the benefits of different programs	Independently select and use appropriate software for a task Independently select, use and combine a variety of software to design and create content for a given audience

	In Year 3 pupils will be taught to:	In Year 6 pupils will be taught to:
	With support select and use a variety of software to accomplish goals	Independently select, use and combine a variety of software to design and create content for a given audience, including collecting, analysing, evaluating and presenting data and information Design and create a range of programs, systems and content for a given audience Independently select, use and combine a variety of software to collect, analyse, evaluate and present data and information

Key Vocabulary
Store   organise   manipulate   retrieve   save   digital content   software