



Subject Progression Grid for Computing

Teachers will need to include some discreet computing lessons but ideally these will be spread through the year. Once an area of study has been taught it should be used in cross curricular lessons in order to put concepts and skills into practice. NC objectives are shown in bold. Online safety should be taught with the 3 Cs in mind – Conduct, Contact, Content.

Year Group	Units of Study	Key Knowledge	Key Skills	Key Vocabulary
Reception	Although computing does not form part of the EYFS Statutory Framework, we believe that it remains an important aspect of our teaching and learning in Reception. As part of their continuous provision, children are exposed to a range of opportunities to encounter technology and use it in a range of different ways. They are given access, at an appropriate level and with support where necessary, to a range of digital devices. We maintain a strong focus on safety and children are taught to be careful and respectful when using digital devices, and to tell an adult when something goes wrong.			
	Computer Science	To know that devices can be controlled in different ways e.g. pressing a button, using a touch screen.	To be able to control a variety of devices e.g. I-pads, Beebots, the interactive screen.	Control Beebot I-pad Button Touch screen
	Information Technology	To know a range of different devices which can be used at school and at home.	To be able to use a range of different devices for different purposes.	Device Purpose
	Digital Literacy (Smartie the Penguin)	To know that problems can occur when using digital devices, both at home and at school. To know that they should tell a trusted adult if something goes wrong.	To be able to identify situations where they need adult support. To be able to identify trusted adults.	Tell Trusted adult Safe
		To know that devices are used in a wide range of situations e.g. to take pictures, find information, communicate with others.	To develop an awareness of technology around them. To be able to recognise common uses of information and communication technology within school and at home.	I-pad Interactive screen

Year Group	Units of Study (including suggested blocks of work where appropriate)		Key Knowledge	Key Skills	Key Vocabulary
1	Computer Science	<i>Crazy Characters</i> <i>Bricks</i> <i>Beebots tinkering</i> <i>Bits and Bytes game</i> <i>Unplugged activities</i> <i>Beebots 123</i> <i>JiT</i>	To know what algorithms are. To know that algorithms need to be precise.	To be able to write an algorithm. To be able to use an algorithm. To be able to create simple programs using button commands. To be able to improve an algorithm. To be able to debug simple programs using trial and error.	Algorithm Instruction Program Action Character Debug
	Information Technology	Cross-curricular use of digital devices to create and store content. Use technology purposefully to create and store digital content.	To know that technology can be used to create a range of content including pictures and text.	To be able to open specific programs. To be able to save documents in a specific location. To be able to create content for a given purpose. To be able to print finished content. To be able to use the space key when typing.	Document Picture Text Save Open Print
	Digital Literacy	E-Safety video and rules, Digi Duck	To know which information is personal. To know why it is important to keep personal information private. To know that they should talk to a trusted adult if something goes wrong.	To be able to use technology safely. To be able to keep personal information private. To be able to identify trusted adults.	Personal Information Private Rules Online
		<i>How a library works</i> (Alternative plans – <i>How a Bank Works</i> or <i>How a Supermarket Works</i>)	To know that technology is used in a wide range of situations.	To be able to recognise common uses of information technology beyond school.	Technology

Year Group	Units of Study (including suggested blocks of work where appropriate)		Key Knowledge	Key Skills	Key Vocabulary
2	Computer Science	Unplugged activities (<i>Spelling Rules, Lego Builders, Making Sandwiches</i>) <i>Beebots Basics</i> <i>Daisy dinosaur</i> Scratch Junior	To know that programs execute (work) by following precise and unambiguous instructions. To know that algorithms are implemented as programs on digital devices.	To be able to predict the result of a single algorithm. Use logical reasoning to debug programs. Use logical reasoning to predict the behaviour of simple programs.	Digital Devices Predict Logic
	Information Technology	<i>Digital artists (Mondrian art)</i> Cross-curricular activities making pictures and texts by creating documents, saving drafts and re-opening the drafts to edit.	To know that different types of content can be made on digital devices. To know that they can save a document and then find it again in the same place. Use technology purposefully to organise digital content. Use technology purposefully to manipulate digital content.	To be able to retrieve (open) saved documents. To be able to insert pictures into text documents. To be able to create content for a specific purpose. To be able to evaluate their own work against its purpose. To be able to edit documents to make them fit the purpose.	Retrieve File Document Text Picture Purpose Digital devices Edit
	Digital Literacy	Online Safety	To know how to use technology respectfully. To understand their rights when using digital content (e.g. not to be exposed to unsuitable content). To know where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	To be able to identify a range of acceptable and unacceptable behaviour when using technology. To be able to recognise content that they need to report.	Respect Rights Report Content Contact Acceptable/ unacceptable

Year Group	Units of Study (including suggested blocks of work where appropriate)		Key Knowledge	Key Skills	Key Vocabulary
3	Computer Science	Hopscotch, JiT, <i>Scratch Tinkering</i>	To know that there are different programming languages.	To be able to write programs that accomplish specific goals. To be able to explore a range of programming languages.	Sequence Input Programming language Error Repeat
		<i>The Human crane</i> (unplugged activity), <i>Dinosaur fossil animation</i>	To know that algorithms must be written in order. To know that the order that algorithms are written will change the outcome.	To be able to use sequence in programs. To be able to write a program with a sequence of instructions.	
		<i>2D shape</i> (unplugged activity)	To know that errors in algorithms lead to an unexpected outcomes.	To be able to use logical reasoning to detect errors in algorithms.	
		<i>Shapes and crystal flowers activity</i> (link to art and maths)	To know what the repeat command does.	To be able to use repetition in programs.	
		<i>Investigating inputs Scratch activity</i> Use of other inputs e.g. keyboard, touchscreen, mouse, microphone,	To know what an input is.	To be able to use more than one form of input when writing programs.	
		<i>Selecting Search</i> <i>www.bbc.co.uk/bitesize/clips/zspbcdm</i>	To know how search results are selected.	To begin to evaluate search results. To be able to use a search engine effectively.	Search Search engine Results
	Information Technology	<i>Internet explorers</i>	To know that there are search engines for children e.g. https://swiggle.org.uk/ https://www.kiddle.co/ To know that no search is completely safe.	To be able to use search technologies effectively. To be able to use key words when searching and to change words to find the required information. To be able to distinguish between adverts and other search results.	World Wide Web Internet Web crawler Key words
		Cross-curricular designing and creating content e.g. <i>presentations, posters, video.</i>	To know that different software is suitable for different tasks.	To be able to use a variety of software to accomplish given goals.	Information Software Online Present Slideshow
		<i>Information collectors</i>		To be able to collect information from different sources e.g. online and from digital books.	
		<i>Presenting my ideas</i>	To know that information can be presented in different ways.	To be able to present information. To be able to create a simple slideshow.	
	Digital Literacy	Online Safety <i>Internet Legends – Kind Kingdom, Tower of Treasure</i>	To know how to use technology responsibly. To understand rights and responsibilities when using digital content. To know a range of ways (including CEOP) to report concerns about content and contact. To know that people on the internet may not be who they say they are.	To be able to use technology responsibly. To understand that their use of technology can affect other people. To identify ways of behaving responsibly when using technology in school and at home.	Responsibly Responsibility Rights Report CEOP Conduct

Year Group	Units of Study (including suggested blocks of work where appropriate)		Key Knowledge	Key Skills	Key Vocabulary
4	Computer Science	Throughout all units, building on work from Year Three.	To know a wide range of different inputs (e.g. keyboard keys, green flag on scratch, shake on mobile devices).	To be able to use various forms of input when writing programs.	Test Output Device Design Games Debugging
		<i>Bug in the water cycle activity</i>	To know what debugging is.	To be able to debug programs to accomplish specific goals. To be able to explain how to debug a program.	
		<i>Scratch smoking car</i>	I know that games are programmed using algorithms.	To be able to design programs that accomplish specific goals.	
		<i>Investigating outputs</i> <i>Classroom sound monitor</i>	To know what an output is. To know common uses of output devices around school.	To be able to work with various forms of output. To be able to write a programme that uses an output device.	
		<i>Network hunt activity</i>	I know the names of devices on a computer network (e.g. server). I know that different devices on a network have different purposes.	To be able to explain the main part of a computer networks. To understand computer networks.	Computer network Server Printer Switch Digital devices Client WiFi Point
		<i>Ranking search activity</i>	To know how search results are ranked by search engines.	To be able to investigate how search engines work. To apply their knowledge when designing a webpage.	
	Information Technology	Cross curricular use of IT to create documents and content including use of images. Beginning to use Google Classroom software within the summer term.	To know which software is most suitable for a given task. To know that computers can aid design (CAD link in DT).	To be able to select a variety of software to accomplish given goals. To be able to select, use and combine internet services.	Goal Accomplish CAD Internet Services
		Evaluating their work and that of other people, evaluating the usefulness and layout of web pages.	To know that information can be presented in many different ways (e.g. as text, images, audio, and video or 3D representations).	To be able to analyse information. To be able to evaluate information.	Information (in contrast to data which would be numbers)
	Digital Literacy	Cross curricular use of IT including starting to use Google Classroom stream and email.	To know the opportunities that computer networks offer for communication.	To be able to explain how computer networks offer opportunities for communication. To be able to use computer networks to communicate, including how to send an email.	Communicate Computer Networks Email
		<i>Think you know Band Runner</i> https://www.thinkuknow.co.uk/8_10/ <i>Internet Legends – Mindful Mountain</i>	To identify a range of ways to report concerns about content and know how to do this (e.g. taking screen shots, using the CEOP button, reporting and blocking contacts). To know that people may use fake identities on the internet and the dangers this could pose.	To be able to recognise acceptable and unacceptable behaviour when using digital devices. To be able to recognise appropriate online contacts.	Appropriate/ inappropriate Reporting Blocking Screen shot Identity Fake

Year Group	Unit of Study		Key Knowledge	Key Skills	Key Vocabulary
5	Computer Science	<i>Solar System Simulation</i>	To know that computers can be used to simulate physical systems. To know real life applications for simulating physical systems and the advantages of doing this.	To be able to simulate physical systems. To be able to design and create a simulation.	Simulate Selection Variables Simulate System Decompose
		<i>Maths quiz selection</i>	To know what selection is.	To be able to use selection in programs.	
		<i>Maths quiz with variables</i>	To know what a variable is.	To be able to work with variables when creating programs.	
		<i>Make a game project</i>	To know how decomposing a problem can be used to plan and write a program. I know that precise programming is needed to make a game.	To be able to solve problems by decomposing them into smaller parts. To be able to use a range of skills (e.g. decomposing and debugging) to design and create systems. I can evaluate and improve my work.	
		<i>Modelling the internet activity</i>	To know that computer networks can provide multiple services, such as the world wide web. To know the internet provides access to the world wide web.	To understand computer networks, including the internet. To be able to explain the difference between the world wide web and the internet.	Internet WWW Network Service
	Information Technology	Introduction to spreadsheet software e.g. Excel, Google Sheets <i>Data Dash 1</i> (or cross curricular data investigation)	I know that spreadsheet software can be used to collect and present data. I know how to refer to specific cells.	To be able to collect data to answer a given question. To be able to present data in a table, graph or chart.	Data attribute Data value Cell Spreadsheet
		Cross curricular use of IT to create a range of content by combining different software e.g. importing an edited image, video or audio file into a presentation or Scratch program, Comic life using images from different sources.	To know that different software can be used for different tasks. To know that content can be enhanced by combining different software.	To be able to combine a variety of software on a range of digital devices.	Software Names of types of software e.g. word processing, drawing software.
	Digital Literacy	Cross curricular use of Google Classroom to create content collaboratively.	To understand the opportunities that computer networks offer for collaboration.	To be able to create a range of content collaboratively.	Collaborate Collaboration
		<i>Tree Octopus activity – write rules for evaluating internet information.</i> <i>Internet legends – Reality River</i>	To know that not everything on the internet is true. To know a range of ways to evaluate information.	To be discerning in evaluating digital content.	Fake/ Reality Evaluate Trustworthy

Year Group	Unit of Study	Key Knowledge	Key Skills	Key Vocabulary	
6	Throughout year six, children will become more independent in selecting, using and combining software to accomplish specific tasks and solve problems. They will broaden their use and mastery of the computer skills they have developed, making choices about how to respond to different projects.				
	Computer Science	<i>Logical number sequences activity, Logical Reasoning Unplugged (Sudoku) activity</i>	To know how logical reasoning can be used to solve a problem.	To be able to use logical reasoning to detect and correct errors in algorithms. To be able to use logical reasoning to explain how algorithms work.	Logic Reasoning
		<i>Microbits</i>	To know that sensors can be used as inputs.	To be able to control or simulate physical systems. To be able to develop mastery of skills, become more independent in designing and creating systems. To select use and combine techniques to design and create programs.	Sensor Combine Select
		<i>Making calculator on scratch</i>			
	<i>Viking raids</i>				
	Information Technology	<i>Data Dash 2 and 3</i> (or cross curricular data investigation)	To know that a variety of graphs can be produced. To know which graph is suitable for a given task.	To be able to analyse data. To be able to evaluate data. To be able to use the sort and search function.	Formula Calculated data
		Cross curricular use of IT e.g. making a map of the local area, making stop frame animations (possible science link) and movies.	To know the most appropriate software for a given task. To know that there is a variety of software for the same task (e.g. word processing) created by different companies. To know that content created or collected from different software can be combined for a given purpose.	To be able to select, use and combine software on a range of digital devices. To be able to choose the correct software for a given task.	Know specific names of software e.g. Libre office Writer, Microsoft Word, Google Docs
Digital Literacy	Online Safety in a variety of contexts including social media, gaming, knowledge of rules. Useful resources – CEOP, CPC videos, ICO resources.	To know that there are laws regarding use of online services e.g. copyright, laws regarding youth produced sexual imagery (Sexting). To know that their use of online services creates a digital footprint. To know that online services have terms of service which can include age regulations.	To understand the need to be safe when using computer networks for collaboration in a wide range of contexts. To be able to identify ways to use technology responsibly. To be able to identify ways to leave a positive digital footprint. To understand how to follow rules when using online services.	Copyright Digital Footprint Virus Terms of service Informed Choices Law	