National Curriculum 2014: Progression in Computing

	Year 1/2	Year 3/4	Year 5/6
Computer Science	Pupils should be taught to: • understand what algorithms are; how they are implemented as programs on digital devices and that programs execute by following precise and unambiguous instructions • create and debug simple programs • use logical reasoning to predict the behaviour of simple programs	Pupils should be taught to: • design write and debug programs that accomplish specific goals,…..solve problems by decomposing them in smaller parts • use sequence, selection and repetition in programs • use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	Pupils should be taught to: • design, write and debug programs that accomplish specific goals; including controlling or simulating physical systems and solving problems by decomposing them into smaller parts • use sequence, selection and repetition in programs; work with variables and various forms of input and output • use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
	For instance: *Pupils learn to program a basic floor turtle such as a BeeBot to navigate increasingly complex routes and are able to debug their instructions when the turtle does not reach the intended destination* *Pupils learn to program an onscreen app such as BeeBot or Kodable to complete a set task and are able to debug their instructions when the turtle does not reach the intended destination* *Pupils use a more complex turtle with standard units to navigate increasingly complex routes, and are able to debug their instructions when the turtle does not reach the intended destination* *Extension - Pupils learn to use a simple graphical programming language such as Logo, Scratch or Turtle to navigate around the screen* *Extension - Pupils create a 3D environment, using a graphical language such as Kodu. They link this to a story such as an island adventure*	*For instance:* *Pupils learn to use graphical programming language, such as Scratch or Logo to draw regular 2D shapes. Pupils add loops or procedures to create a repeating pattern* *Pupils learn to sequence instructions, for instance to create an animation using Scratch, or by using the timing features in PowerPoint* *Pupils write a simple algorithm, for instance to create a basic traffic light sequence. They then use flowcharting software (such as Go or Flowgo) to create a simple program to control an onscreen icon* *Extension - Pupils create a simple game using a graphical language such as Kodu or Scratch*	*For instance:* *Pupils write a simple algorithm, for instance to create a basic traffic light sequence. They then use flowcharting software (such as Go or Flowgo) to create a simple program to control an onscreen icon. They are able to explain how their program works* *Pupils create a computer game, using a graphical language such as Scratch or Kodu* *Extension – Pupils learn to use and program a raspberry pi to complete a basic task*

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	Year 1/2	Year 3/4	Year 5/6
Computer Science continued	Pupils should be taught to: • recognise common uses of information technology beyond school	Pupils should be taught to: • recognise common uses of information technology beyond school	Pupils should be taught to: • understand computer networks including the internet; how they can provide multiple services, such as the world wide web, and the opportunities they offer for communication and collaboration
	For instance: *Pupils learn about some of the uses of the internet*	*For instance:* *Pupils learn to collaborate electronically by blogging - mailing and working on shared documents using the pupil sites of the DLG*	*For instance:* *Pupils learn to collaborate electronically by blogging -mailing, and working on shared documents using the pupil sites of the DLG. This can be extended to working with other schools* *Pupils learn that connected devices exchange packets of data and this can convey a range of information from a text to a video call*

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	Year 1/2	Year 3/4	Year 5/6
Digital Literacy	Pupils should be taught to: • use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content on the internet or other online technologies	Pupils should be taught to: • Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concerns about content and contact	Pupils should be taught to: • use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concerns about content and contact
	For instance: *Pupils learn that the Internet is a great place to develop rewarding online relationships and learn to recognise websites that are good for them to visit; but they also learn to be cautious and to check with a trusted adult before sharing private information* *Pupils are introduced to the concept that real people send messages to one another on the Internet and learn how messages are sent and received. They recognise that it may be difficult to distinguish between someone who is real and someone who is not* *Pupils are introduced to the basics of online searching* *Pupils learn to explore websites and to say whether they like them or not and why*	*For instance:* *Pupils learn that the Internet is a great place to develop rewarding online relationships and learn to recognise websites that are good for them to visit; but they also learn to be cautious and to check with a trusted adult before sharing private information* *Pupils learn to make good passwords for their accounts, learn about spam and how to deal with it. They begin to understand the implications for the information that they share online and how some websites might use that information without their knowledge* *Pupils are introduced to their roles as digital citizens in an online community, where they reflect on how they are responsible not only for themselves but for others, in order to create a safe and comfortable environment* *Pupils learn that the Internet is a public space and then develop the skills to protect their privacy and respect the privacy of others*	*For instance:* *Pupils learn that the internet is a great place where online relationships can be developed. They compare and contrast online friends and real life, face to face friends and learn how to respond if an online friend asks them a personal question* *Pupils learn to create secure passwords for their accounts, learn about spam and how to deal with it, and decode website privacy policies, understanding the implications for the info that they share online* *Pupils explore their roles as digital citizens in an online community, where they reflect on their responsibilities and learn that good digital citizens are responsible and respectful in the digital world* *Pupils begin to explore the nature of online audiences and permanency of information online. They begin to understand the significance of published information and personal information* *Pupils understand what it means to be a good digital citizen as they interact with others online by understanding how to prevent and respond to cyberbullying. They also learn how to communicate effectively to prevent miscommunication in order to be a responsible member of a connected culture*

	Year 1/2	Year 3/4	Year 5/6
Digital Literacy continued		*continued* *Pupils explore how they interact with others and are introduced to the concept of cyberbullying. They also learn how to communicate to be a responsible member of a connected culture effectively in order to prevent miscommunication*	*continued* *Pupils begin to consider the impact of their online presence on their own self- image and the way others see them and explore how to construct a positive online profile* *Pupils learn the 'do's and don'ts' of copying and pasting information to avoid plagiarism. They learn how to avoid plagiarism by putting information in their own words, putting excerpted information into quotes, and providing citations. They learn to show respect for other people's creations by giving them credit*
		• use search technologies effectively, appreciate how results are selected and ranked and be discerning in evaluating digital content	• use search technologies effectively, appreciate how results are selected and ranked and be discerning in evaluating digital content
		For instance: *Pupils are introduced to the basics of online searching, including how to use effective keywords. They also learn to conduct searches that provide them with the most helpful and relevant information*	*For instance:* *Pupils explore issues relating to online searching, including how to use effective keywords, using directories and subject categories, and how to analyse the usefulness and relevancy of the results. They learn to conduct searches that provide them with the most helpful and relevant information* *Pupils develop skills for evaluating websites, online information and advertising by rating the trustworthiness and usefulness of websites, and learning to identify the different types of online advertising*

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	Year 1/2	Year 3/4	Year 5/6
ICT	Pupils should be taught to: • use technology purposefully to create, organise, store, manipulate and retrieve digital content	Pupils should be taught to: • select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	Pupils should be taught to: • select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
	For instance: *Digital Publishing: Pupils learn to use basic word processing package and to write and illustrate a short story* *Presentation: Pupils learn to make simple presentations* *Graphics: Pupils learn to create a simple digital painting* *Animations: Pupils learn to make a simple animation for instance in Puppet Pals* *Media: Pupils learn to use digital cameras and microphones for a purpose* *Working with data: Pupils learn to create and use a pictogram* *Modelling: Pupils explore online simulations such as Charlie Chimp*	*For instance:* *Digital Publishing: Pupils learn how to use software to create an e-book, brochure or poster on a given subject* *Presentations: Pupils learn to write and deliver a presentation on a given subject* *Graphics: Pupils learn how to take, adapt or create images to enhance or further develop their work* *Animations: Pupils learn how to develop a storyboard and then create a simple animation using for instance 'Puppet Pals' or 'Stop Motions' Animation'* *Sound and video: Pupils record and edit media to create a short sequence* *Working with data: Pupils learn to search, sort and graph information*	*For instance:* *Digital Publishing: Pupils learn how to use software to create an e-book, brochure or poster on a given subject, incorporating a range of media* *Presentations: Pupils learn to write and deliver a presentation, incorporating a range of media* *Graphics: Pupils learn how to take, adapt or create images to enhance or further develop their work and incorporate it in a wider project* *Animations: Pupils learn how to develop a storyboard and then create a simple animation using for instance Puppet pals' or 'Stop Motions Animation' - this may be extended by editing the final product in using video editing software* *Sound and video: Pupils record and edit media to create a short sequence - extended by editing the final product in using video editing software* *Working with data: Pupils learn to search, sort and graph information* *Modelling: Pupils learn how to use a spreadsheet to model data*