Yr Gp	Key concepts for all year groups	Knowledge/ understanding	Computing Terms / key vocabulary	Suggested programs/links.	Key Computing enquiry questions/ Example of P4C questions	End Points
EYFS	Understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation Analyse problems in computational terms and have repeated practical experience of writing computer programs in order to solve such problems. Evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems	E-Safety: Sharing my use of technology with an adult. Programming: Choose and use commands to make something (robot/on screen) move. Sharing Information: Share and record my thoughts and ideas through technology. Technology and our lives: Understand that technology is used in many places.	e-safety command input technology	E-Safety: Project Evolve Childnet Programming: Beebot iOS app Daisy the Dinosaur iOS app Sharing Information: Shadow Puppet / Puppet Pals iOS apps Voice recorder Camera / video app	**P4C Stimulus / Questions:** Long ago and now video *How does tech make life easier?* The Time Capsule Why do people record their thoughts and ideas? **Enquiry questions** What should I do if something unexpected happens? Did my commands work? How are the inputs the same on screen as on the robot? How does technology help me share my ideas with other people?	To know the differences and similarities between the real world and the online world, particularly in relation to keeping yourself safe. To understand cause and effect. To know that technology can record my ideas. To operate simple equipment and suggests how it works.

1	Understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation Analyse problems in computational terms and have repeated practical experience of writing computer programs in order to solve such problems. Evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems	E-Safety: Understand they and adults have the responsibility to keep themselves safe online. Programming: Use algorithms to complete a simple task (with or without technology) and evaluate its effectiveness Sharing Information: Create, edit, store and retrieve information using a range of technologies. Technology and our lives: Begin to understand the benefits of technology depending on the purpose.	e-safety Algorithm Debug Sequence Program Output File Undo Font Data Image Delete	E-Safety: Project Evolve Childnet CEOP / ThinkUKnow Purple Mash resources Programming: Beebot iOS app Daisy the Dinosaur iOS app 2Code Chimp Sharing information: Skitch /Shadow Puppet / Puppet Pals iOS apps Voice recorder Dictation tools to see voice into text Camera / video app	**P4C Stimulus / Questions:** Sharing a Shell by Julia Donaldson Are there things we can't share? Why should we share? I'm a Robot Inventor video *Could robots 'live' without people?* Feeling Better: worried *Are worries normal?* *How does sharing help ease worries?* **Enquiry questions** What should I do if something unexpected happens? Can you recognise which part of your code/instructions are incorrect?	Understand why technology is monitored and filtered for our safety. To be able to create appropriate algorithms. To be able to create and retrieve information in a range of forms. To understand the benefits of technology.
2	Understand and apply the fundamental principles and concepts of computer science, including abstraction, logic,	E-Safety: Understand the safe use of personal information online. Show awareness of	Personal Appropriate	E-Safety: Project Evolve Childnet Newsround	**P4C Stimulus / Questions** Dogs React to Robot Dog	To know what personal information means and how to keep this safe both

	algorithms and data representation Analyse problems in computational terms and have repeated practical experience of writing computer programs in order to solve such problems. Evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems	age appropriate websites and apps. Programming: Understand algorithms can be applied in different contexts. Develop more complex algorithms and understand how to debug. Sharing Information: Create, edit and save information for a given purpose, paying attention to the intended audience. Technology and our lives: Explore how and why different people use technology to communicate information.	Share Social media Profile Permissions Sprite Background Scale Action Block Copy / paste Undo Audience	CEOP / ThinkUKnow Programming: Hopscotch iOS app Daisy the Dinosaur iOS app 2Code Chimp Scratch Jr Lego Wedo Sharing Information: 2Create a story Office 365 tools Dictation tools to see voice into text 2Paint Camera / video app Book Creator / Skitch / Shadow Puppet / Puppet Pals iOS apps Imovie / Microsoft Photos GarageBand 2Sequence Sampulator	*Could you ever love a robot?* *Could a robot love you?* *Are there some jobs robots could never do?* Personal info video *Can you know too much about a person? How?* Messages through time *What is the safest way to send a secret message?* **Enquiry questions** What should I do if something unexpected happens? Can you recognise and alter the part of your code which was incorrect? Was the change successful?	online, and in the real world. To be able to create an algorithm and refine for effect (debug). Begin to develop an understanding of efficiency. To be able to create and retrieve information in an increasingly wide range of forms appropriate to the audience. To understand the benefits of technology for communication and collaboration across a wide range of audiences.
3	Understand and apply the fundamental principles and concepts of computer science, including abstraction, logic,	E-Safety: Recognise acceptable and unacceptable behaviour when using different technologies, who to report it to and how.	Deconstruct Variable Timer	E-Safety: BBC Own it Project Evolve Childnet CEOP / ThinkUKnow	**P4C Questions** How the Internet Works Could we live without the Internet?	To be able to identify and correct inappropriate or naïve online behaviour in a range of scenarios.

	algorithms and data representation Analyse problems in computational terms and have repeated practical experience of writing computer programs in order to solve such problems. Evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems	Programming: Use a block language to create a program to achieve a specific outcome. Refine and review pre-written algorithms. Sharing Information: Planning content to input into given applications. Evaluating the end result of their own work against the desired outcome. Technology and our lives: Recognise the Internet as a giant network of communication and how the school network fits within this.	Repeat Event CEOP Password Username Blog PEGI rating Software Simulation Media Spreadsheet Cells Format Draft Network System	Programming: Hopscotch iOS app Pyonkee app Lightbot app 2Code Gibbon Scratch Jr / Scratch Lego Wedo Minecraft Edu Sharing Information: 2Create a story Office 365 tools 2Paint a Picture Book Creator / Skitch / Shadow Puppet / Puppet Pals iOS apps Imovie / Microsoft Photos Iunapic Drumbit Musiclab Prezi	Online vs Real World Can you spend too long online? Digital Etiquette Is there still an online world and an offline world, or is it just 'The World'? Is it always OK to believe what you find on the internet? What would you uninvent? **Enquiry questions** What should I do if something unexpected happens?	Create a simple game/animation/presentation using a block programming software such as Scratch Jnr/Scratch, Discovery coding, Pyonkee. To experience a variety of software packages and their strengths and weaknesses.

4	Understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation Analyse problems in computational terms and have repeated practical experience of writing computer programs in order to solve such problems. Evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems	E-Safety: Understand the rules and consequences of their online behaviour. Programming: Use logical reasoning to detect and fix errors in programmes. Sharing Information: Planning content to input into applications choosing the most appropriate and effective one. Evaluating the end result of others against the desired outcome and giving feedback. Technology and our lives: Recognise that information on the Internet is owned. (Copyright).	If Else Selection Virus Phishing Copyright Plagiarism Spam Encrypted	E-Safety: BBC Own it Project Evolve Childnet CEOP / ThinkUKnow Programming: Hopscotch iOS app Pyonkee app Lightbot app 2Code Gibbon Scratch Lego Wedo Minecraft Edu Sharing Information: 2Create a story Office 365 tools 2Paint a Picture Book Creator / Skitch / Shadow Puppet / Puppet Pals iOS apps Imovie / Microsoft Photos Iunapic Drumbit Musiclab Prezi	**P4C Stimulus / Questions** Children's Rights Should you be able to write or say anything you like online? Would we be happier without technology? What is 'real'? What s choice? Intellectual Property Fatima or Desire'e video Article The government should be allowed to use whatever they want, right? **Enquiry questions** What should I do if something unexpected happens?	To know the consequences of poor behaviour online and how to avoid this happening. Create a game/animation/presentation using a block programming software such as Scratch, Discovery coding, Pyonkee. Debug coding to improve outcome. Choose and justify a software package independently that will meet an end goal.

5	Understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation Analyse problems in computational terms and have repeated practical experience of writing computer programs in order to solve such problems. Evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems	E-Safety: Respectful use of mobile technology and how our digital footprint is created. Programming: Decompose longer and more complex programmes to detect and debug errors. Sharing Information: Planning content to input into applications including combining different applications, on different devices, to produce quality work. Evaluating throughout the process adapting plans as needed. Technology and our lives: Recognise the importance of accurate searching online and able to reflect on the results.	Digital footprint Consequences Encryption Spoof site Browser Concept Alert Programming language Selection	E-Safety: BBC Own it Project Evolve Childnet CEOP / ThinkUKnow Programming: Hopscotch iOS app 2Code Gorilla Pyonkee app Scratch Lego Mindstorms Pluralsight (HTML intro for kids) Flowol Minecraft Edu Sharing Information: Office 365 tools Book Creator / Skitch / Shadow Puppet / Imovie / Microsoft Photos Iunapic GarageBand app Drumbit Prezi Twine (interactive stories / branching data) Soundation	**P4C Stimulus / Questions** What is a Digital Footprint? Should what you do in your past affect how people view you in your future? Does technology change human nature? Is there a “natural” way for humans to live? Does what you say depend on where you say it? **Enquiry questions** What should I do if something unexpected happens? Tree Octopus Without books, could there be an internet? Is most of the internet ‘fake’?	To understand that information put online never goes away. To understand that decisions pupils make online can impact theirs and others future. Create a game/animation/presentation using a block programming software such as Scratch, Discovery coding, Pyonkee, Flowol or Twinery. Debug and refine coding continually throughout the process to improve end outcome. Apply knowledge and understanding to choose an appropriate combination of software packages which are fit for purpose.

6	Understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation Analyse problems in computational terms and have repeated practical experience of writing computer programs in order to solve such problems. Evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems	E-Safety: Recognise acceptable and unacceptable behaviour when using social media including how I present myself online. Programming: Simplify code to make it more efficient and apply decomposing skills in a variety of contexts making links between different programmes. Sharing Information: Planning content to input into applications including combining different applications, on different devices, to produce quality work. **Digitally discerning?** Evaluating throughout the process adapting plans as needed. Technology and our lives: Recognise the importance of accurate searching online and is this information trustworthy. (Sponsored sites).	Concept map Function Random Machine code LAN / WAN Intitle related	E-Safety: BBC Own it Project Evolve Childnet CEOP / ThinkUKnow Programming: Hopscotch iOS app 2Code Gorilla Pyonkee app Scratch Lego Mindstorms Pluralsight (HTML intro for kids) Flowol Minecraft Edu Sharing Information: Office 365 tools Book Creator / Skitch / Shadow Puppet / Imovie / Microsoft Photos Iunapic GarageBand app Drumbit Prezi Twine (interactive stories / branching data) Soundation	**P4C Stimulus / Questions** Body Image Are influencers' lives perfect? Are video games bad for me? Should violent video games be banned? Are Humans Getting Cleverer? Has the internet made us less or more intelligent? Can we choose to ignore technology? Who is to blame if a robot car does not allow for human error? When does something we choose to do make us unhappy? What makes us trust or distrust other people? **Enquiry questions**	To understand that information put online never goes away. To understand that how you portray yourself online is how others will see you. Create an increasingly complex game/animation/presentation using a block programming software such as Scratch, Discovery coding orPyonkee Other 'languages' / formats - Flowol / Flowgo (see D and T plan) or Twinery. Debug and refine coding continually throughout the process to improve end outcome and be able to justify decisions made. Apply knowledge and understanding to choose an appropriate combination of software packages which are fit for purpose and with the target audience in mind.

				Tech & Lives: Bitesize Searches 1 Searches 2 Google tips	What should I do if something unexpected happens?	