

Frogwell Primary School

Computing curriculum progression document

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
KS1: 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 - use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies		KS2: Pupils should be taught to: - design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve 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 - 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 - use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content - 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 - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact			
DIGITAL LITERACY AND ONLINE SAFETY					
EYFS Project Evolve	- I can recognise some ways in which the internet can be used to communicate. (Term 2) - I can give examples of how I (might) use technology to communicate with people I know (Term 2) - I can recognise, online or offline, that anyone can say 'no' - 'please stop' - 'I'll tell' - 'I'll ask' to somebody who makes them feel sad, uncomfortable, embarrassed or upset. (Term 3) - I can describe ways that some people can be unkind online. (Term 5) - I can offer examples of how this can make others feel (Term 5) - I can identify ways that I can put information on the internet. (Term 5)				
CNRB	- Following rules - Stranger danger - Online Safety – passwords, using different sites				
TERM 1 2023 – PROJECT EVOLVE – Managing online information, Copyright and Ownership					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
I can give simple examples of how to find information using digital technologies, e.g. search engines, voice activated searching.	I can use simple keywords in search engines I can demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back)	I can demonstrate how to use key phrases in search engines to gather accurate information online. I can explain how the internet can be used to sell and buy things	I can analyse information to make a judgement about probable accuracy and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others.	I can evaluate digital content and can explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results. I can explain key concepts including: information.	I can explain how and why some people may present 'opinions' as 'facts'; why the popularity of an opinion or the personalities of those promoting it does not necessarily make it true, fair or perhaps even legal.

I know / understand that we can encounter a range of things online including things we like and don't like as well as things which are real or make believe / a joke. I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened I can explain why work I create using technology belongs to me	buttons; links, tabs and sections). I can explain what voice activated searching is and how it might be used, and know it is not a real person (e.g. Alexa, Google Now, Siri). I can explain why some information I find online may not be real or true I can recognise that content on the internet may belong to other people.	I can explain the difference between a 'belief', an 'opinion' and a 'fact. and can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc I can describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened. I can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.	I can describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online I can explain what is meant by fake news e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't. I can give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.	reviews, fact, opinion, belief, validity, reliability and evidence I can explain what is meant by the term 'stereotype', how 'stereotypes' are amplified and reinforced online, and why accepting 'stereotypes' may influence how people think about others. I can explain what is meant by a 'hoax'. I can explain why someone would need to think carefully before they share. I can give examples of content that is permitted to be reused and know how this content can be found online.	I can define the terms 'influence', 'manipulation' and 'persuasion' and explain how someone might encounter these online (e.g. advertising and 'ad targeting' and targeting for fake news). I can demonstrate how to analyse and evaluate the validity of 'facts' and information and I can explain why using these strategies are important. I can identify, flag and report inappropriate content. I can demonstrate how to make references to and acknowledge sources I have used from the internet.
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TERM 3 – PROJECT EVOLVE – Health, Wellbeing and Lifestyle

I can explain rules to keep myself safe when using technology both in and beyond the home.	I can explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment.	I can explain why spending too much time using technology can sometimes have a negative impact on anyone; I can give some examples of both positive and negative activities where it is easy to spend a lot of time engaged I can explain why some online activities have age restrictions, why it is important to follow them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites).	I can identify times or situations when someone may need to limit the amount of time they use technology e.g. I can suggest strategies to help with limiting this time.	I can describe ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively. I recognise the benefits and risks of accessing information about health and well-being online and how we should balance this with talking to trusted adults and professionals. I can explain how and why some apps and games may request or take payment for additional content (e.g. in-app purchases, lootboxes) and explain the importance of seeking permission from a trusted adult before purchasing	I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose. I can recognise features of persuasive design and how they are used to keep users engaged (current and future use). I can assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise).
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TERM 5 PROJECT EVOLVE – Privacy and Security

I can explain how passwords are used to protect information, accounts and devices. I can recognise more detailed examples of information that is personal to someone (e.g. where someone lives and goes to school, family names). I can explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others	I can explain how passwords can be used to protect information, accounts and devices. I can describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords). I can explain how some people may have devices in their homes connected to the internet and give examples (e.g. lights, fridges, toys, televisions)	I can describe simple strategies for creating and keeping passwords private. I can give reasons why someone should only share information with people they choose to and can trust. I can explain that if they are not sure or feel pressured then they should tell a trusted adult. I can describe how connected devices can collect and share anyone's information with others.	I can describe strategies for keeping personal information private, depending on context. I can describe how some online services may seek consent to store information about me; I know how to respond appropriately and who I can ask if I am not sure. I know what the digital age of consent is and the impact this has on online services asking for consent.	I can explain what a strong password is and demonstrate how to create one. I can explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others. I can explain what app permissions are and can give some examples.	I can describe effective ways people can manage passwords (e.g. storing them securely or saving them in the browser). I can describe simple ways to increase privacy on apps and services that provide privacy settings. I can describe ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing). I know that online services have terms and conditions that govern their use.
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COMPUTER SCIENCE

EYFS	• Use Beebots • Unplugged activities - (eg maze building with lego, jigsaws, ordering and sequencing pictures) • Pretend technology in role play eg. keyboard/laptop/telephone/till)
CNRB	• Activating switches/buttons • Pressing switches/buttons GO (BEEBOTS) • Input simple operations into a BEEBOT • Moving through a maze on computer using single finger, following movement- their action creates desired effect • Click on icons to start an application • Moving an object across the screen • Simple coding programmes – 2Code (Purple Mash)

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<u>T2: Moving a robot</u> I can explain what a given command will do I can act out a given word I can combine forwards and backwards commands to make a sequence I can combine four direction commands to make sequences I can plan a simple program I can find more than one solution to a problem <u>T6: Programming Animation</u> I can choose a command for a given purpose I can show that a series of commands can be joined together I can identify the effect of changing a value I can explain that each sprite has its own instructions I can design the parts of a project I can use my algorithm to create a program	<u>T2: Robot algorithms</u> I can describe a series of instructions as a sequence I can explain what happens when we change the order of instructions I can use logical reasoning to predict the outcome of a program I can explain that programming projects can have code and artwork I can design an algorithm I can create and debug a program that I have written <u>T4: Programming quizzes</u> I can explain that a sequence of commands has a start I can explain that a sequence of commands has an outcome I can create a program using a given design I can change a given design I can create a program using my own design I can decide how my project can be improved	<u>T1: Connecting computers</u> I can explain how digital devices function I can identify input and output devices I can recognise how digital devices can change the way we work I can explain how a computer network can be used to share information I can explore how digital devices can be connected I can recognise the physical components of a network <u>T4: Programming – sequencing sounds</u> I can explore a new programming environment – Scratch I can identify that commands have an outcome I can explain that a program has a start I can recognise that a sequence of commands can have an order I can change the appearance of my project I can create a project from a task description <u>T5: Programming – events and actions</u> I can explain how a sprite moves in an existing project I can create a program to move a sprite in four directions	<u>T1: The Internet</u> I can describe how networks physically connect to other networks I can recognise how networked devices make up the internet I can outline how websites can be shared via the World Wide Web (WWW) I can describe how content can be added and accessed on the World Wide Web (WWW) I can recognise how the content of the WWW is created by people I can evaluate the consequences of unreliable content <u>T2: Programming – repetition in shape</u> I can identify that accuracy in programming is important I can create a program in a text-based language (Logo) I can explain what 'repeat' means I can modify a count-controlled loop to produce a given outcome I can decompose a task into small steps I can create a program that uses count-controlled loops to produce a given outcome <u>T3: Programming – repetition in games</u>	<u>T1: Systems and Searching</u> I can explain that computers can be connected together to form systems I can recognise the role of computer systems in our lives I can experiment with search engines I can describe how search engines select results I can explain how search results are ranked I can recognise why the order of results is important, and to whom <u>T4: Programming – selection in quizzes</u> I can explain how selection is used in computer programs (Scratch) I can relate that a conditional statement connects a condition to an outcome I can explain how selection directs the flow of a program I can design a program which uses selection I can create a program which uses selection I can evaluate my program <u>T6: Programming – Sensing movement</u> I can create a program to run on a controllable device (Microbit) I can explain that selection can control the flow of a program	<u>T1: Communication and Collaboration</u> I can explain the importance of internet addresses I can recognise how data is transferred across the internet <u>T2: Programming – Variables</u> I can define a 'variable' as something that is changeable I can explain why a variable is used in a program (Scratch) I can choose how to improve a game by using variables I can design a project that builds on a given example I can use my design to create a project I can evaluate my project <u>T6: Programming – selection in physical computing (Crumble)</u> I can control a simple circuit connected to a computer I can write a program that includes count-controlled loops I can explain that a loop can stop when a condition is met I can explain that a loop can be used to repeatedly check whether a condition has been met I can design a physical project that includes selection I can create a program that controls a physical computing project

		I can adapt a program to a new context I can develop my program by adding features I can identify and fix bugs in a program I can design and create a maze-based challenge	I can develop the use of count-controlled loops in a different programming environment (Scratch) I can explain that in programming there are infinite loops and count controlled loops I can develop a design that includes two or more loops which run at the same time I can modify an infinite loop in a given program I can design a project that includes repetition I can create a project that includes repetition	I can update a variable with a user input I can use a conditional statement to compare a variable to a value I can design a project that uses inputs and outputs on a controllable device I can develop a program to use inputs and outputs on a controllable device	
Beebots (Term 2) Scratch Jr (Term 6)	Beebots (Term 2) Scratch Jr (Term 4)	Purple Mash Paint app (Term 1) Network tour – server, server, switch, and wireless access points (Term 1) Scratch (Term 4 and 5)	Chrome Music Lab (Term 1) Purple Mash – Logo (Term 2) Scratch (Term 3)	Scratch (Term 4) Microbits (Term 6)	Scratch (Term 2) Crumble (Term 6)

INFORMATION TECHNOLOGY

EYFS	• Paint project – select and use tools to colour (Purple Mash) • Use keyboard to type name • Use shift key and write a caption • Log on to the computer • Use apps to support learning on iPad, interactive class screen				
CNRB	• Drawing shapes/making marks with single finger on an art application (Purple mash) • Click on icons to start an application • Moving an object across the screen Tracking objects on a screen, operating switches at appropriate times • Entering their name using the keyboard (Purple mash) • Select applications using logos • Using cameras/iPads to take still/ moving pictures • Using search engines to find out information • Simple paint programs (Purple Mash) • Making pictograms. •				
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<u>T1: Technology around us</u> I can identify technology I can identify a computer and its main parts I can use a mouse in different ways I can use a keyboard to type on a computer I can use a keyboard to edit text. I can create rules for using technology responsibly <u>T3: Digital Painting</u> I can describe what different freehand tools do I can use the shape tool and the line tools I can make careful choices when painting a digital picture	<u>T1: Information Technnology around us</u> I can recognise the uses and features of information technology I can identify the uses of information technology in the school I can identify information technology beyond school I can explain how information technology helps us I can explain how to use information technology safely I can recognise that choices are made when using information technology <u>T2: Digital Photography</u> I can use a digital device to take a photograph I can make choices when taking a photograph I can describe what makes a good photograph	<u>T2: Branching Databases</u> I can create questions with yes/no answers I can identify the attributes needed to collect data about an object I can create a branching database I can explain why it is helpful for a database to be well structured I can plan the structure of a branching database I can independently create an identification tool <u>T6 : Desk Top Publishing</u> I can recognise how text and images convey information I can recognise that text and layout can be edited I can choose appropriate page settings	<u>T4: Photo editing</u> I can explain that the composition of digital images can be changed I can explain that colours can be changed in digital images I can explain how cloning can be used in photo editing I can explain that images can be combined I can combine images for a purpose I can evaluate how changes can improve an image <u>T6: Data Logging</u> I can explain that data gathered over time can be used to answer questions I can use a digital device to collect data automatically I can explain that a data logger collects 'data points' from sensors over time	<u>T2: Flat file databases</u> I can use a form to record information I can compare paper and computer-based databases I can outline how you can answer questions by grouping and then sorting data I can explain that tools can be used to select specific data I can explain that computer programs can be used to compare data visually I can use a real-world database to answer questions <u>T5: Vector drawing</u> I can identify that drawing tools can be used to produce different outcomes I can create a vector drawing by combining shapes I can use tools to achieve a desired effect	<u>T1: Communication and collaboration</u> I can explain how sharing information online can help people to work together I can recognise how we communicate using technology I can evaluate different methods of online communication <u>T4: Spreadsheets</u> I can create a data set in a spreadsheet I can build a data set in a spreadsheet I can explain that formulas can be used to produce calculated data I can apply formulas to data I can create a spreadsheet to plan an event I can choose suitable ways to present data <u>T5: Web-page creation</u>

I can explain why I chose the tools I used I can use a computer on my own to paint a picture I can compare painting a picture on a computer and on paper <u>T4: Digital writing</u> I can use a computer to write I can add and remove text on a computer I can identify that the look of text can be changed on a computer I can make careful choices when changing text I can explain why I used the tools that I chose I can compare typing on a computer to writing on paper <u>T5: Grouping Data</u> I can label objects I can identify that objects can be counted I can describe objects in different ways I can count objects with the same properties I can compare groups of objects I can answer questions about groups of objects	I can decide how photographs can be improved I can use tools to change an image I can recognise that photos can be changed <u>T5: Digital music</u> I can say how music can make us feel I can identify that there are patterns in music I can experiment with sound using a computer I can use a computer to create a musical pattern I can create music for a purpose I can review and refine our computer work <u>T6: Pictograms</u> I can recognise that we can count and compare objects using tally charts I can recognise that objects can be represented as pictures I can create a pictogram I can select objects by attribute and make comparisons I can recognise that people can be described by attributes I can explain that we can present information using a computer	I can add content to a desktop publishing publication I can consider how different layouts can suit different purposes I can consider the benefits of desktop publishing	I can recognise how a computer can help us analyse data I can identify the data needed to answer questions I can use data from sensors to answer questions	I can recognise that vector drawings consist of layers I can group objects to make them easier to work with I can apply what I have learned about vector drawings	I can review an existing website and consider its structure I can plan the features of a web page I can consider the ownership and use of images (copyright) I can recognise the need to preview pages I can outline the need for a navigation path I can recognise the implications of linking to content owned by other people
Purple Mash 2Write (Term 1 and 4)	iPads, digital cameras Pixlr (Term 2)	J2e.com (Term 2)	Pixlr x (Term 4) Data loggers and iPads	J2e.com (Term 2) Google drawings (Term 5)	Google Slides (Term 1) Google Sheets (Term 4)

Purple Mash 2Paint (Term 3) Purple Mash – grouping activities (Term 5)	Chrome Music Lab (Term 5) Purple Mash 2Explore, 2Beat, 2Sequence (Term 5) Purple Mash 2Count and 2Graph (Term 6)	Purple Mash 2Question (Term 2) iPads and iMotion app (Term 6)	Arduino Science Journal app (Term 6)		Google Sites (Term 5)
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