Deer Park Primary School
COMPUTING CURRICULUM

Our Ultimate End Goal:
What will our children to be able to do when they leave Deer Park?

- By the end of their time at Deer Park Primary School our Year 6 children will have developed into responsible, confident and creative users of technology, who apply computational thinking beyond the Computing curriculum
- They will become digitally literate and are active participants in a digital world
- They will know how to stay safe whilst using technology and, on the internet, minimising risk to themselves and others.
- Our children will have had repeated practical experience writing computer programs in order to solve problems, including logic & algorithms.
- They will have the ability to ask and answer questions through collecting, analysing, evaluating and presenting data and information.
- Ultimately, they will have a clear understanding how digital networks work and the services they provide. This will enable them to use search options effectively whilst understanding the need to evaluate the relevance of content.
- Our children will be respectful, responsible and competent digital citizens; they will have the knowledge to support themselves and others online.

Curriculum Coverage (NC)
What are the most basic requirements from the National Curriculum?

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Connected to relevant early learning goals **Technology** Understanding technology **Self-confidence and self-awareness** **Managing feelings and behaviour** E-Safety **Exploring and using media and materials** Digital literacy **Being imaginative** Programming **Moving and Handling** Understanding	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.		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			

Overview

Cycle A			
Reception	**Year 1 and Year 2**	**Year 3 and Year 4**	**Year 5 and Year 6**
Purple Mash 2 Paint a picture.	**Purple Mash** Exploring (1.1) Effective searching (2.5)	**Purple Mash** Coding (4.1)	**Purple Mash** Creating animation using coding?
Purple Mash Mini Mash - Builders	**Purple Mash** Lego builders (1.4) Technology outside school (1.9)	**Purple Mash** Spreadsheets (4.3)	**Project Evolve** Staying safe online
Purple Mash Mini Mash -Numbers	**Project Evolve** Online safety	**Project Evolve** Online safety	**Purple Mash** Producing spreadsheets
Purple Mash 2 Go	**Purple Mash** Spreadsheets (1.8)	**Purple Mash** Writing for different audiences (4.4)	**Purple Mash** Creating text adventure
Purple Mash 2 Paint tools	**Purple Mash** Coding (1.7)	**Purple Mash** Logo (4.5) Animation (4.6)	**Purple Mash** What is a network?
Purple Mash 2 Paint tools	**Purple Mash** Coding (2.1)	**Purple Mash** Effective search- (4.7) Hardware investigator (4.8) Parts of a computer	**Purple Mash** Creating quizzes

Cycle B			
Reception	**Year 1 and Year 2**	**Year 3 and Year 4**	**Year 5 and Year 6**
Purple Mash 2 Paint a picture.	**Purple Mash** Exploring (1.1) Maze explorers (1.5)	**Purple Mash** Coding (3.1)	**Purple Mash** How can I use coding to code my own computer game?
Purple Mash Mini Mash - Builders	**Purple Mash** Questioning (2.4) Project Evolve	**Purple Mash** Spreadsheets (3.3) Touch typing (3.4)	**Purple Mash** How can I create a useful spreadsheet?
Purple Mash Mini Mash -Numbers	**Project Evolve** Online safety	**Project Evolve** Online safety	**Project Evolve** Staying safe online
Purple Mash 2 Go	**Purple Mash** Animated story books (1.6)	**Purple Mash** Email (3.5)	**Purple Mash** Data bases
Purple Mash 2 Paint tools	**Purple Mash** Making music (2.7) Spreadsheets (2.3)	**Purple Mash** Branching databases (3.6)	**Purple Mash** 3D Modelling
Purple Mash 2 Paint tools	**Purple Mash** Pictograms (1.3) Presenting ideas (2.8)	**Purple Mash** Graphing (3.8) Simulations (3.7)	**Purple Mash** Concept Maps

PROCEDURAL KNOWLEDGE - What skills do we want our scientists to have? Analyse, evaluate and solve problems-How will these skills build on what went before and help prepare our children for what is coming next?
Computer Science Theory and Online Safety Programming Information Technology Digital Literacy

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Discuss the use of everyday technology such as TVs, phones etc	As the previous year and:	As the previous year and:	As the previous year and:	As the previous year and:	As the previous year and:	As the previous year and:
Save work to a designated place	Discuss and explore how to use technology safely and carefully	Discuss and explore how to use technology safely and carefully	Use search engines effectively and safely	Use search engines effectively and safely	Use the internet/search tools effectively and safely with support from adults and begin to understand the importance of using/reproducing the information	Use the internet/search tools effectively and safely without support from adults and begin to understand the importance of using/reproducing the information
Click and drag on PC, iPad and smartboard	Log on to a PC using their log-in details, save a document and then shut down safely	Log on to a PC using their log-in details, save a document and then shut down safely	Understand how to keep information private and how to report concerns	To use blogging and email confidently to communicate and support learning		
Use keyboard to type short, simple words	Use 'WORD' to write simple sentences and choose different fonts and colours	Use 'WORD' to write simple sentences and choose different fonts and colours	Import and export text from a range of sources. Change the font, colour and letter casing and make corrections	Make and edit a short film using appropriate media packages adding sound or voice	To enhance learning in and out of school by choosing the appropriate technology (email, seesaw etc...)	To use a range of devices (handheld and not) to extend learning, understanding and competency of ICT skills in the real world
Order and sequence events and give instructions	Use a digital paint programme to draw, reshape and recolour pictures	Use a digital paint programme to draw, reshape and recolour pictures	Use the spellchecker and dictionary accurately	To combine photographs and text using an appropriate programme	Use email and attach documents to communicate	
Record and playback a video/photo and sounds	Add labels to pictures or photographs	Add labels to pictures or photographs	Use find and replace text within text	To test and debug programmes/or sets of instructions		To communicate with friends online safely using a variety of media
Use technology to draw a picture, add text and animate it	Create a simple set of instructions to make something happen	Create a simple set of instructions to make something happen	To sort data and produce a graph	Use simple programming software to create a simple game using extensive knowledge of algorithms	Create a presentation incorporating text, images and sounds for an identified audience	To create a webpage with hyperlinks and embedded videos
	Use a range of media (internet, CD-ROMs, DVDs etc) to find		Use commands to build a complex of		Create a presentation with pictures and text including slide	Create a document that is fit for purpose,

	information about a given topic		instructions to control devices on screen

Confidently save work and retrieve files from a range of places on networks

Begin to use blogging, seesaw and email to communicate and support learning | To combine complex sequences of instructions

Understand how the school network, search engines, the interne | transitions and hyperlinks

Create a document that is fit for purpose, using a range of publishing tools. Including making mind-maps with images

Use commands to build complex sequences of instruction

Use sequences of instructions to control devices

Describe at least one decision made in an algorithm

Explain your 'code' that controls a device Interpret and interrogate information

Explore virtual maps | using a range of publishing tools to suit a specific task

Combine text and graphics for effect to suit a purpose

Use sequences of instructions to write a series of code to suit a purpose such as a game

Control devices and on-screen games by writing sequences of instructions

Code devices to carry out a specific task

Use formulae in a spreadsheet and interpret and interrogate information

Create films, including sound effects, music, transitions and special effects.

Save productions to an external media such as a hard-drive, USB or cloud |

CYCLE A AND CYCLE B: Propositional knowledge:
What lines of enquiry do we want our scientists to follow?
What experiences do we want our scientists to have had?

EYFS

Mouse and Trackpad Skills	Keyboard Skills	Drawing skills	Robots	Sounds	Technology Around Us	Hardware	Safety and Privacy
Hold a computer mouse with my finger on the correct buttons. Use a mouse to make the cursor move around the computer screen where they want it to go. Click the correct mouse button to play games on the computer. Use a mouse accurately to click and drag objects on the screen. Use the mouse roller to scroll up and down a page. Use a laptop touchpad.	Find all the letters of the alphabet on a keyboard. Put spaces between words in my typed work. Know how to correct typed work without re-doing the work entirely using the delete keys. Type capital letters and lower case and know how to change between these. Type numbers using a keyboard. Know how to move to the next line down when typing. Use the arrow keys to move around the screen.	Select colours when painting on the computer. Draw pictures on the computer to go with their work. Use a computer to draw with different widths of pens. Try the different tools that they can draw with on the computer. Use the undo button correctly. Use the erase button. Use a touchscreen device purposefully. Draw on a computer using a mouse.	Talk about where I am moving a toy vehicle whilst they are moving it. Describe the route taken by a toy vehicle. Follow directions to make a route for a toy vehicle. Plan a route for a toy vehicle. Follow their own plan for where the toy vehicle should move. Make a floor robot move. Control the forwards, backwards and rotation of a floor robot one step at a time.	Make music using a computer. Add sound effects to my work. Use a device to record myself speaking and play back the sounds.	Talk about what technology is used at home. Talk about what technology is used outdoors. Talk about what technology is used in the world around them.	Understand why having clean hands is important when using shared devices. Understand why it is not sensible to eat and drink whilst using a technological device. Understand why i need to take care with electronic devices and their plugs and wires. Take appropriate actions when they need to carry a device to a different location. Use devices with care. Identify the technology used around them.	Explain how their work on the computer belongs to them and other people's work belongs to them. Explain what it means for something to be private. Talk about how my body feels when they are not comfortable with something. Know who can help me when they are feeling worried. Show that they understand how to be kind to others. Choose activities in their free time that help them to be healthy.

| | Use the different inputs of a computer keyboard. | | Program a 3-step route for a floor turtle.

Predict where a floor robot will end up when given the instructions for a 2 or 3 step route.

Plan a route for a floor robot and then carry out these instructions one step at a time. | | | Identify the parts of a computer and what they are for. | |

YEAR 1

Aspect	⭐ Statement
Computer Science	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.
Information Technology	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
Digital Literacy	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.

Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that a computer program turns an algorithm into code that the computer can understand

Children can work out what is wrong with a simple algorithm when the steps are out of order, e.g. The Wrong Sandwich in Purple Mash and can write their own simple algorithm, e.g. Colouring in a Bird activity. Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code, e.g. Bubbles activity in 2Code.

When looking at a program, children can read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program. Children can, for example, interpret where the turtle in 2Go challenges will end up at the end of the program.

Children are able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work and follow simple instructions to access online resources, use Purple Mash 2Quiz example (sorting shapes), 2Code design mode (manipulating backgrounds) or using pictogram software such as 2Count.

Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can make a distinction between objects that use modern technology and those that do not e.g. a microwave vs. a chair.

Children understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons. Children take ownership of their work and save this in their own private space such as their My Work folder on Purple Mash.

Online Safety

Self-Image and Identity	Online Relationships	Online Reputation	Online Bullying	Managing online information	Health, Well-being and Lifestyle	Privacy and Security	Copyright and Ownership
Recognise that there may be people online who could make someone feel sad, embarrassed or upset. Identity If something happens that makes them feel sad, worried, uncomfortable or frightened they can give examples of when and how to speak to an adult they can trust and how they can help.	Give examples of when they should ask permission to do something online and explain why this is important. Use the internet with adult support to communicate with people they know (e.g. video call apps or services). Explain why it is important to be considerate and kind to people online and to respect their choices Explain why things one person finds funny or sad online may not always be seen in the same way by others.	Recognise that information can stay online and could be copied. Describe what information they should not put online without asking a trusted adult first.	Describe how to behave online in ways that do not upset others and can give examples.	Give simple examples of how to find information using digital technologies, e.g. Search engines, voice activated searching. 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. Know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened.	Explain rules to keep myself safe when using technology both in and beyond the home.	Explain how passwords are used to protect information, accounts and devices. Recognise more detailed examples of information that is personal to someone (e.g where someone lives and goes to school, family names). Explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.	Explain why work they create using technology belongs to me Say why it belongs to me (e.g. 'I designed it' or 'I filmed it"). Save my work under a suitable title or name so that others know it belongs to me (e.g. Filename, name on content). Understand that work created by others does not belong to me even if I save a copy

YEAR 2

Aspect	⭐ Statement
Computer Science	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.
Information Technology	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
Digital Literacy	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.

Year 2

Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code.

Children can create a simple program that achieves a specific purpose. They can also identify and correct some errors, e.g. Debug Challenges: Chimp.Children's program designs display a growing awareness of the need for logical, programmable steps.

Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program.

Children demonstrate an ability to organise data using, for example, a database such as 2Invesitigate and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data such as music compositions within 2Sequence. Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound.

Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. They can share this knowledge, e.g. 2Publish example template. Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs.

Children know the implications of inappropriate online searches. Children begin to understand how things are shared electronically such as posting work to the Purple Mash display board. They develop an understanding of using email safely by using 2Respond activities on Purple Mash and know ways of reporting inappropriate behaviours and content to a trusted adult.

Online Safety

Self-Image and Identity	Online Relationships	Online Reputation	Online Bullying	Managing online information	Health, Well-being and Lifestyle	Privacy and Security	Copyright and Ownership
Explain how other people may look and act differently online and offline. Give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened; they can give examples of how they might get help.	Give examples of how someone might use technology to communicate with others they don't also know offline and explain why this might be risky. (e.g. email, online gaming, a pen-pal in another school / country). Explain who they should ask before sharing things about themselves or others online. Describe different ways to ask for, give, or deny my permission online and can identify who can help explain why they have a right to say 'no' or 'I will have to ask someone'. I can explain who can help me if they feel under pressure to agree to	Explain how information put online about someone can last for a long time. Describe how anyone's online information could be seen by others. Know who to talk to if something has been put online without consent or if it is incorrect.	Explain what bullying is, how people may bully others and how bullying can make someone feel. Explain why anyone who experiences bullying is not to blame. Talk about how anyone experiencing bullying can get help.	Use simple keywords in search engines. Demonstrate how to navigate a simple webpage to get to information they need (e.g., Home, forward, back buttons; links, tabs and sections). 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). Explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real' Explain why some information i find online may not be real or true.	Explain simple guidance for using technology in different environments and settings e.g., Accessing online technologies in public places and the home environment. Say how those rules / guides can help anyone accessing online technologies	Explain how passwords can be used to protect information, accounts and devices. Explain and give examples of what is meant by 'private' and 'keeping things private'. Describe and explain some rules for keeping personal information private (e.g., Creating and protecting passwords). Explain how some people may have devices in their homes connected to the internet and give examples (e.g. Lights, fridges, toys, televisions).	Recognise that content on the internet may belong to other people. Describe why other people's work belongs to them

	something they am unsure about or don't want to do. Identify who can help me if something happens online without my consent. Explain how it may make others feel if they do not ask their permission or ignore their answers before sharing something about them online. Explain why they should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online						

YEAR 3

Aspect	⭐ Statement
Computer Science	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.
Information Technology	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.
Digital Literacy	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concern about content and contact.

Year 3

Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. Children can identify an error within their program that prevents it following the desired algorithm and then fix it.

Children demonstrate the ability to design and code a program that follows a simple sequence. They experiment with timers to achieve repetition effects in their programs. Children are beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects.

Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, repetition and use of timers. They make good attempts to 'step through' more complex code in order to identify errors in algorithms and can correct this. e.g. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.

Children can list a range of ways that the Internet can be used to provide different methods of communication. They can use some of these methods of communication, e.g. being able to open, respond to and attach files to emails using 2Email. They can describe appropriate email conventions when communicating in this way.

Children can carry out simple searches to retrieve digital content. They understand that to do this, they are connecting to the internet and using a search engine such as Purple Mash search or internet-wide search engines.

Children can collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database (2Question), using software such as 2Graph. Children can consider what software is most appropriate for a given task. They can create purposeful content to attach to emails, e.g. 2Respond.

Children demonstrate the importance of having a secure password and not sharing this with anyone else. Furthermore, children can explain the negative implications of failure to keep passwords safe and secure. They understand the importance of staying safe and the importance of their conduct when using familiar communication tools such as 2Email in Purple Mash. They know more than one way to report unacceptable content and contact.

Online Safety

Self-Image and Identity	Online Relationships	Online Reputation	Online Bullying	Managing online information	Health, Well-being and Lifestyle	Privacy and Security	Copyright and Ownership
Explain what is meant by the term 'identity'. Explain how people can represent themselves in different ways online Explain ways in which someone might change their identity depending on what they are doing online (e.g., Gaming; using an avatar; social media) and why.	Describe ways people who have similar likes and interests can get together online. Explain what it means to 'know someone' online and why this might be different from knowing someone offline. Explain what is meant by 'trusting someone online', why this is different from 'liking someone online', and why it is important to be careful about who to trust online including what information and content they are trusted with. Explain why someone may change their mind about trusting anyone with	Explain how to search for information about others online Give examples of what anyone may or may not be willing to share about themselves online. Explain the need to be careful before sharing anything personal. Explain who someone can ask if they are unsure about putting something online.	Describe appropriate ways to behave towards other people online and why this is important. Give examples of how bullying behaviour could appear online and how someone can get support.	Demonstrate how to use key phrases in search engines to gather accurate information online. Explain what autocomplete is and how to choose the best suggestion. Explain how the internet can be used to sell and buy things Explain the difference between a 'belief', an 'opinion' and a 'fact and give examples of how and where they might be shared online, e.g. In videos, memes, posts, news stories etc. Explain that not all opinions shared may be accepted as true or fair by others (e.g.,	Explain why spending too much time using technology can sometimes have a negative impact on anyone. Give some examples of both positive and negative activities where it is easy to spend a lot of time engaged Explain why some online activities have age restrictions, why it is important to follow them and know who they can talk to if others pressure me to watch or do something online that makes them feel uncomfortable (e.g. Age restricted gaming or web sites).	Describe simple strategies for creating and keeping passwords private. Give reasons why someone should only share information with people they choose to and can trust. Explain that if they are not sure or feel pressured then they should tell a trusted adult. Describe how connected devices can collect and share anyone's information with others.	Explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.

something if they feel nervous, uncomfortable or worried. Explain how someone's feelings can be hurt by what is said or written online. Explain the importance of giving and gaining permission before sharing things online; how the principles of sharing online is the same as sharing offline e.g., Sharing images and videos.			Monsters under the bed). Describe and demonstrate how they can get help from a trusted adult if they see content that makes us feel sad, uncomfortable, worried or frightened.			

YEAR 4

Aspect	⭐ Statement
Computer Science	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.
Information Technology	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.
Digital Literacy	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concern about content and contact.

⭐ Year 4

When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs.

Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'IF statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables. Children can make use of user inputs and outputs such as 'print to screen'. e.g. 2Code.

Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'IF' statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct this. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.

Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the Internet can be used to provide different methods of communication is improving.

Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level. .

Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software such as 2Connect and 2Publish+. Children share digital content within their community, i.e. using Virtual Display Boards.

Children can explore key concepts relating to online safety using concept mapping such as 2Connect. They can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact.

Online Safety

Self-Image and Identity	Online Relationships	Online Reputation	Online Bullying	Managing online information	Health, Well-being and Lifestyle	Privacy and Security	Copyright and Ownership
Explain how their online identity can be different to their offline identity. Describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them. Explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this.	Describe strategies for safe and fun experiences in a range of online social environments (e.g., Livestreaming, gaming platforms) Give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours. Explain how content shared online may feel unimportant to one person but may be important to other people's thoughts feelings and beliefs.	Describe how to find out information about others by searching online. Explain ways that some of the information about anyone online could have been created, copied or shared by others.	Recognise when someone is upset, hurt or angry online. Describe ways people can be bullied through a range of media (e.g., Image, video, text, chat). Explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation).	Analyse information to make a judgement about probable accuracy. Understand why it is important to make their own decisions regarding content and that their decisions are respected by others. Describe how to search for information within a wide group of technologies and make a judgement about the probable accuracy (e.g., Social media, image sites, video sites). Describe some of the methods used to encourage people to buy things online (e.g., Advertising offers; in-app purchases, pop-ups) and can	Explain how using technology can be a distraction from other things, in both a positive and negative way. Identify times or situations when someone may need to limit the amount of time they use technology e.g. they can suggest strategies to help with limiting this time.	Describe strategies for keeping personal information private, depending on context. Explain that internet use is never fully private and is monitored, e.g., Adult supervision. Describe how some online services may seek consent to store information about me; they know how to respond appropriately and who they can ask if they am not sure. Know what the digital age of consent is and the impact this has on online services asking for consent.	When searching on the internet for content to use, they can explain why they need to consider who owns it and whether they have the right to reuse it. Give some simple examples of content which they must not use without permission from the owner, e.g. Videos, music, images.

| | | | | recognise some of these when they appear online.

Explain why lots of people sharing the same opinions or beliefs online do not make those opinions or beliefs true.

Explain that technology can be designed to act like or impersonate living things (e.g., Bots) and describe what the benefits and the risks might be.

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. | | | |
|---|---|---|---|---|---|---|---|

YEAR 5

Aspect	⭐ Statement
Computer Science	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.
Information Technology	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.
Digital Literacy	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concern about content and contact.

Year 5

Children may attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts. Children are able to test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code.

Children can translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures. They are combining sequence, selection and repetition with other coding structures to achieve their algorithm design.

When children code, they are beginning to think about their code structure in terms of the ability to debug and interpret the code later, e.g. the use of tabs to organise code and the naming of variables.

Children understand the value of computer networks but are also aware of the main dangers. They recognise what personal information is and can explain how this can be kept safe. Children can select the most appropriate form of online communications contingent on audience and digital content, e.g. 2Blog, 2Email, Display Boards.

Children search with greater complexity for digital content when using a search engine. They are able to explain in some detail how credible a webpage is and the information it contains.

Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution. e.g. creating their own program to meet a design brief using 2Code. They objectively review solutions from others. Children are able to collaboratively create content and solutions using digital features within software such as collaborative mode. They are able to use several ways of sharing digital content, i.e. 2Blog, Display Boards and 2Email.

Children have a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and online services. Children implicitly relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others.

Self-Image and Identity	Online Relationships	Online Reputation	Online Bullying	Managing online information	Health, Well-being and Lifestyle	Privacy and Security	Copyright and Ownership
Explain how identity online can be copied, modified or altered. Demonstrate how to make responsible choices about having an online identity, depending on context.	Give examples of technology-specific forms of communication (e.g. Emojis, memes and gifs). Explain that there are some people they communicate with online who may want to do me or my friends harm. They can recognise that this is not my / our fault. Describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with others and make positive contributions. (e.g. Gaming communities or social media groups). Explain how someone can get help if they are	Search for information about an individual online and summarise the information found. Describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect	Recognise online bullying can be different to bullying in the physical world and can describe some of those differences. Describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying. Explain how anyone can get help if they are being bullied online and identify when to tell a trusted adult. Identify a range of ways to report concerns and access support both in school and at home about online bullying. Explain how to block abusive users. Describe the helpline services	Explain the benefits and limitations of using different types of search technologies e.g. Voice-activation search engine. They can explain how some technology can limit the information they are presented with. Explain what is meant by 'being sceptical'; they can give examples of when and why it is important to be 'sceptical'. Evaluate digital content and can explain how to make choices about what is trustworthy e.g. Differentiating between adverts and search results. Explain key concepts including: information, reviews, fact, opinion, belief, validity, reliability	Describe ways technology can affect health and well-being both positively (e.g. Mindfulness apps) and negatively. Describe some strategies, tips or advice to promote health and wellbeing with regards to technology. 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. 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	Explain what a strong password is and demonstrate how to create one. 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. Explain what app permissions are and can give some examples.	Assess and justify when it is acceptable to use the work of others Give examples of content that is permitted to be reused and know how this content can be found online.

having problems and identify when to tell a trusted adult. Demonstrate how to support others (including those who are having difficulties) online.		which can help people experiencing bullying, and how to access them (e.g. Childline or the mix).	and evidence. Identify ways the internet can draw us to information for different agendas, e.g. Website notifications, pop-ups, targeted ads Describe ways of identifying when online content has been commercially sponsored or boosted, (e.g. By commercial companies or by vloggers, content creators, influencers). 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. Describe how fake news may affect someone's emotions and behaviour, and	importance of seeking permission from a trusted adult before purchasing.		

| | | | | explain why this may be harmful.

Explain what is meant by a 'hoax'. They can explain why someone would need to think carefully before they share. | | | |
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YEAR 6

Aspect	⭐ Statement
Computer Science	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.
Information Technology	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.
Digital Literacy	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concern about content and contact.

Year 6

Children are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs.Children test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code causing a problem.

Children translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures, including nesting structures within each other. Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions.

Children are able to interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm together to explain the program as a whole.

Children understand and can explain in some depth the difference between the internet and the World Wide Web. Children know what a WAN and LAN are and can describe how they access the internet in school.

Children readily apply filters when searching for digital content. They are able to explain in detail how credible a webpage is and the information it contains. They compare a range of digital content sources and are able to rate them in terms of content quality and accuracy. Children use critical thinking skills in everyday use of online communication.

Children make clear connections to the audience when designing and creating digital content. The children design and create their own blogs to become a content creator on the internet, e.g. 2Blog. They are able to use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements.

Children demonstrate the safe and respectful use of a range of different technologies and online services. They identify more discreet inappropriate behaviours through developing critical thinking, e.g. 2Respond activities. They recognise the value in preserving their privacy when online for their own and other people's safety.

Self-Image and Identity	Online Relationships	Online Reputation	Online Bullying	Managing online information	Health, Well-being and Lifestyle	Privacy and Security	Copyright and Ownership
Identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online. Describe issues online that could make anyone feel sad, worried, uncomfortable or frightened. They know and can give examples of how to get help, both on and offline. Explain the importance of asking until they get the help needed.	Explain how sharing something online may have an impact either positively or negatively Describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not. Describe how things shared privately online can have unintended consequences for others. E.g. Screen-grabs. Explain that taking or sharing inappropriate images of someone (e.g. Embarrassing images), even if they say it is okay, may have an	Explain the ways in which anyone can develop a positive online reputation. Explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity.	Describe how to capture bullying content as evidence (e.g screen-grab, URL, profile) to share with others who can help me. Explain how someone would report online bullying in different contexts.	Explain how search engines work and how results are selected and ranked. Explain how to use search technologies effectively. Describe how some online information can be opinion and can offer examples. 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. Define the terms 'influence', 'manipulation' and 'persuasion' and explain how someone might encounter these online (e.g. Advertising and 'ad	Describe common systems that regulate age-related content (e.g. Pegi, BBFC, parental warnings) and describe their purpose. Recognise and can discuss the pressures that technology can place on someone and how / when they could manage this. Recognise features of persuasive design and how they are used to keep users engaged (current and future use). 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).	Describe effective ways people can manage passwords (e.g. Storing them securely or saving them in the browser). Explain what to do if a password is shared, lost or stolen. Describe how and why people should keep their software and apps up to date, e.g. Auto updates. Describe simple ways to increase privacy on apps and services that provide privacy settings. Describe ways in which some online content targets people to gain money or information illegally; they can describe strategies to help them identify such content (e.g.	Demonstrate the use of search tools to find and access online content which can be reused by others. Demonstrate how to make references to and acknowledge sources they have used from the internet.

	impact for the sharer and others; and who can help if someone is worried about this.			targeting' and targeting for fake news). Understand the concept of persuasive design and how it can be used to influences peoples' choices. Demonstrate how to analyse and evaluate the validity of 'facts' and information and they can explain why using these strategies are important. Explain how companies and news providers target people with online news stories they are more likely to engage with and how to recognise this.		Scams, phishing). Know that online services have terms and conditions that govern their use.	

What key vocabulary will our children need? Vocabulary is important because it embodies and communicates concepts.	
EYFS	**Year 1-Year 6**
Mouse, trackpad, computer, button, control, click, screen, laptop, iPad, scroll, Keyboard, keys, space bar, delete, undo, shift, arrow keys Select, widths of pens, paint tools, touchscreen Sound effects, technology, robot, route, instructions, direct, program, device	Refer to attached PDF with a breakdown of all vocabulary for each unit

How does it all link together?

Prior and future learning