

THE VAYNOR CURRICULUM

COMPUTING SEQUENCE



INTENT



Love for Learning:

All children will have a positive, growth mindset towards computing and technology, understanding the importance in everyday life and within our world. Effective use of technology will enhance collaboration, deepen conceptual understanding, improve engagement and enable greater inclusion.



Enquiring Minds:

Children will have the ambition, skills, and expertise to thrive in a fast changing, interconnected and communication rich world, with the confidence and technical expertise to thrive. They will use technology **safely**, efficiently and understand the core principles of coding and be able to apply these across a range of situations.



World Wise:

Children will understand how to **stay safe online** and apply this to their lives by navigating the digital environment with confidence, scepticism and resilience and within their communities and the wider world. They will understand the interconnectedness of computing and logical thinking across subjects as well as understand its importance in every day life.

	Computer Science	Information Technology	Digital Literacy	Online Safety
EYFS	Make a floor robot move randomly Use simple software to make something happen Make choices/predictions about the buttons and icons we press, touch or click on, for example by thinking about how many times we need to press the forwards button to reach Teddy	Talk about different kinds of information such as pictures, video, text and sound Move objects on a screen Create shapes and text on a screen, for example by using an iPad application to draw a picture of a dog with different brushes and colours Use technology to show our learning, for example by taking a photograph of a snail and labelling it with a caption 'a snail has a foot'	Talk about technology that is used at home and in school Operate simple equipment Use a safe part of the internet to play and learn	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 Recognise some ways which the internet can be used to communicate Give examples of how we might use technology to communication with people we know Identify ways that we can put information on the internet Describe ways that some people can be unkind online Offer examples of how this can make others feel Identify rules that help keep us safe and healthy in and beyond the home when using technology Give some examples of these rules Identify some simple examples of personal information Describe who would be trustworthy to share this information with and explain why they are trusted Talk about how to use the internet as a way of finding information online Identify devices we could use to access information on the internet Know that work we create belongs to us Name out work so that others know it belongs to us

Year 1	Children will be introduced to the basis of logical thinking in preparation for coding: - Follow instructions - Create instructions - Understand simple algorithms Children learn coding using the block coding tool, 2Code. They will be able to make a simple program: - Use blocks to code - Understand objects, actions and events - Plan and design a program	Children will learn about 2Dos, saving work and navigating to key areas: - Log in and out of Purple Mash - Open and use 2Dos - Save work in the Work area Children develop their mouse, keyboard and basic computing skills using creative tools: - Make digital art - Make and share jigsaws - Make a drag and drop game Children use software tools to group and sort recognisable objects to collect simple data and present it in a pictogram: - Sort and group items - Understand what data is - Represent data accurately Children create digital books using 2Create a story tool: - Create digital art and text - Add animation to images - Add sound Children will use the tools 2Explore and 2Beat to make their own digital music: - Create sounds using 2Explore - Combine instruments using 2Beat - Compose digital music	Defining and understand what technology is, children will relate this to school, home, outside and to its use in the wider world: - Understand what technology is - Recognise technology in the local environment and wider world	Recognise that there may be people online who could make someone feel sad, embarrassed or upset If something happens that makes us feel sad, worried, uncomfortable or frightened, give examples of when and how to speak to an adult we can trust and how they can Give examples of when we should ask for permission to do something online and explain why this is important Use the internet with adult support to communicate with people we know 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 we 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 Explain rules to keep ourselves safe when using technology both in and beyond the home Explain that passwords are used to protect information, account and devices Recognise more detailed examples of information that is personal to someone Explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to ourselves or others Give examples of how to find information using digital technologies Know and 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 why work we create using technology belongs to us and say why Save our work under a suitable title/name so that other knows it belongs to us Understand that work created by others does not belong to us even if we save a copy
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Year 2	Children code using the tool, 2Go: - Consider direction and distance - Create commands - Build an algorithm Children will explore, modify and create programs that include the user of timers and button objects: - Understand algorithms - Introduce sequencing - Develop coding interactions between objects - Use timers and debugging	Children learn about famous art styles and how a digital art tool can be used to preproduce art in that style: - Paint in different styles - Learn about famous art styles - Create a portfolio of digital art Explore digital music creation using the music tool, 2Sequence: - Understand a digital music tool - Relate functions to musical terms - Compose music digitally Creating and using spreadsheets with 2Calculate, focusing on how to enter, organise and manage data in rows and columns: - Understand rows and columns - Insert images with values - Use totalling tools - Create graphs Children will explore how to ask questions to collect useful information, before organising the data using tally charts, pictograms and simple branching databases to sort and identify objects: - Ask questions to collect data - Use 2Count to present data - Use a branding database Children will learn how to present ideas using the concept mapping too, 2Connect: - Use and make mind maps - Use a mind map as a presentation tool The fundamentals of the internet, including its purpose, how we access it and how to use it safely and effectively: - Define the World Wide Web and the internet - Recognise different hardware - Understand websites, webpages and browsers	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 and give examples of how we 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 Explain who we should ask before sharing things about ourselves or others online Describe different ways to ask for, give, or deny our permission online and identify who can help us if we are not sure Explain why we have a right to say 'no' or 'I will have to ask someone' Explain who can help us if we feel under pressure to agree to something we are unsure about or don't want to do Identify who can help us if something happens online without our consent Explain how it may make others feel if we do not ask their permission or ignore their answers before sharing something about them online Explain why we should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online 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 wju anyone who experiences bullying is not to blame Talk about how anyone experiencing bullying can get help Explain simple guidance for using technology in different environments and settings and say how those rules/guides can help anyone accessing online technology
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			Explain how passwords can be used to protect information, account 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 Explain how some people may have their devices in their homes connected to the internet and give examples Use simple keywords in search engines Demonstrate how to navigate a simple webpage to get information we need Explain what voice activated searching is and how it might be used, and know it is not a real person Explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real' Explain why some information we find online may not be real or true Recognise that content on the internet may belong to other people Describe why other people's work belongs to them
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Year 3	Children will plan algorithms and write code that includes angles of turn to create routes, testing them using 2Go: - Write commands using rotation - Create algorithms and write code - Plan routes - Use repetition in 2Go Children will explore timers, the repeat command and the importance of nesting code: - Use flowcharts in 2Chart - Use timers - Introduce repetition - Test and debug	Children are introduced to touch typing: - Recognise keyboard locations - Understand correct finger positioning - Improve accuracy and speed of typing Children move beyond basic data entry to explore how spreadsheets can calculate and solve problems: - Use an advanced mode of 2Calculate - Understand cell addresses- - Use the formula wizard Children will explore features of the presentation software then create and present their own slideshow presentations: - Add media to presentations - Customise presentations with animations and timings - Design an effective presentation Explore and create branching databases in 2Question: - Ask binary questions - Complete branching databases - Create and test (debug) branching databases	Children explore electronic communication using 2Email: - Compose and reply to emails - Open and send attachments - Use email safely	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 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 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 important of giving ang gaining permission before sharing things online; how the principles of sharing online is the same as sharing offline 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 Explain why spending too much time using technology can sometimes have a negative impact on anyone
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			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 we can talk to if others pressure us to watch or do something online that makes us feel uncomfortable 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 Describe how connected devices can collect and share anyone's information with others 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 Explain that not all opinions shared may be accepted as true or fair by others 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 Explain why copying someone else's work from the internet without permission isn't fair and explain what problems this might cause
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Year 4	Children use Logo programming, focusing on developing their understanding of basic commands and programming concepts: - Use Logo commands - Write commands in a sequence - Refine code using repetition and procedures Children will learn to use section, co-ordinates, looping and variable to create their own game: - Introduce selection in coding - Explore design properties - Introduce loops - Code number variables	Children will use traditional animation methods and compare these methods with using animation software, 2Animate: - Know different types of animation - Understand onion skinning in animation - Explore animation features - Use storyboarding Further understanding of technology and computer systems in relation to their hardware and software: - Define types of technology - Know how systems work together - Identify hardware - Understand software Children will explore the features of effective audio books and work as a team to script, record and edit their own using 2Cast: - Record audio content - Create sound effects - Make post-production edits to stories Children explore the different elements of music, experiment with beats, and compose engaging music using Busy Beats: - Explore pulse, rhythm and tempo - Understand pitch and texture - Compose a melody Children are introduced to Artificial Intelligence, exploring what it is, what it can do, and how it is used in today's digital world: - Explore how AI works - Investigate the positive and negative impacts of AI - Consider AI in the future	Children will use search technologies effectively by selecting clear keywords, refining searches for accuracy and evaluating online content to judge whether it is reliable and trustworthy: - Use a search engine - Search rankings - Use reliable searching algorithms - Search using algorithms	Explain how our online identity can be different to our 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 friends, and suggest reasons why they might do this Describe strategies for safe and fun experiences in a range of online social environments 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 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 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 Describe strategies for keeping personal information private, depending on context Explain that internet use is never fully private and is monitored Describe how some online services may seek consent to store information about us, how to respond appropriately and who we can ask if we are not sure Know that the digital age of consent is and the impact this has on online services asking for consent
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				Analyse information to make a judgement about probable accuracy Understand why it is important to make our own decisions regarding content and that our 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 Describe some methods used to encourage people to buy things online and 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 and describe what the benefits and the risks might be Explain what is meant by fake news When searching on the internet for content to use, explain why we need to consider who own its and whether we have the right to reuse it Give some simple examples of content which we must not use without permission from the owner
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Computing Vocabulary

	EYFS	Year 1	Year 2	Year 3	Year 4
Computer Science	Beebot, Direction, Predict, Forwards, Turn	Algorithm, Coding, Computer Bug, Debugging, Instructions, Program, Action, Attribute, Code, Code Blocks, Code View, Command, Design View, Event, Object, Output, Programmer, Scale, Program Design, When Clicked	Algorithm, Coding, Computer Bug, Command, Debugging, Direction, Action, Attribute, Debug, Event, Bug, Object, Button Object, Output, Collision Detection, Program, Program Design, When Clicked, Sequence, Timer,	Algorithm, Degrees, Repeat, Angle, Command, Route, Turtle Object, Rotation, Action, Flowchart, Alert, Interval, Attribute, Nesting, Button Object, Object, Collision Detection, Repeat, Debug,	Logo, Pen Down, Repeat, Set PC, Pen Up, Logo Commands, Multi-Line Mode, Procedure, Set PS, Action, Flowchart, Alert, 'If' Statement, Attribute, 'If/Else' Statement, Co-ordinates, Debug, Debugging, Initialise, Input, Design, Event,

			When Key Event, When Swiped Event	Debugging, Sequence, Design, Timer, Event	Loop, Nesting, Selection, Object, Sequence, Random Tag Attribute, Timer, Tinker, Repeat, Repeat Until, Variable
Information Technology	Mouse, Keyboard, Monitor, iPad, Tablet, Printer, Record, Play, Pause, Camera, Whiteboard, Touchscreen, Software	Avatar, Icon, Password, File Name, Login, Save, Home Page, Logout, 2Do, Arrow Keys, Digital Art, Drag and Drop, Hotspot, Touchscreen Gestures, Algorithm, Criteria, Data, Group, Pictogram, Sort, Animation, Background, Copy and Paste, Digital Book, Eraser, Font, Sound Effect, Text, Undo, Beat, Compose, Digital, Musical Instrument, Tempo, Tune	Browser, Smart Device, Home Page, Webpage, Internet, Wi-Fi, Search Engine, World, Wide Web, Arts ad Crafts, Import, Palette, De Stijl, Impressionism, Pointillism, Digital Portfolio, Fill Tool, Image Picker, Outline, Repeating Pattern, Resize, Axis, Axes, Cell, Column, Row, Spreadsheet, Value, Branching Database, Closed Question, Pictogram, Sorting, Data, Tally Chart, Open Question, Yes or No Question, Concept Map, Group, Present, Connecting Line, Layer, Title, Node, Background Music, Digital Music, Sound Effect (SFX), BPM, Looping, Tune, Volume, Compose	Binary Choice, Data, Debug, Debugging, Binary Tree, Database, Record, Branching Database, Advanced Mode, Formula Bar, Operations, Copy Tools, Data, Formula, Formula Wizard, Function, Merge, Range, Sheet, Total Tools, Animation, Media, Font, PowerPoint, Format, Handles, Slide, Slide Notes, Slideshow, Text Box, Transition, Word Art, Bottom Keys, Number Row, Space Bar, Home Keys, Posture, Top Keys, Keyboard, Shift Key, Typing	Application (App), Input, Software, Component, Output, Storage, Computer System, Hardware, Peripheral, Process, Program, Technology, Animation, Copy Frame, Animation Software, Background, Frame, Sharing Controls, Frame Per Second, Onion Skinning, Stop Motion, Storyboard, Sound Effect, Audiobook, Background Music, Edit, Editor, Final Mix, Playback, Recording, Sound Effects, Sound Effects Manager, Sound Technician, Timeline, Track, BPM, Patch, Sample, Dynamics, Electronic Music, Melody, Pitch, Pulse, Rippler, Rhythm, Synths, Tempo, Texture, Artificial Intelligence (AI), Automation, Data, Digital Citizenship, Future Technology, Generative AI, Human Oversight, Innovation, Prediction, Privacy, Prompt, Refine, Responsible Behaviour, Trustworthy, Reliable
Digital Literacy	Device, Technology	Device, Digital Technology, Electronic, Hardware, Technology		Address Book, Email, Personal Information, Attachment, Email Simulation, Recipient, Communication, Inbox, Trusted Contact, Compose, Password	Crawl, Internet, Search Bar, Exact Match, Keywords, Search Engine, Fake New, Filter, Index, Rank, Refine, Snippet, Virtual Assistant Device, Website, Relevance, Reliable Source
Online Safety	Help, Trusted, Adult, Rules, Online, Offline	Digital Footprint, Filter, Log Out, Internet, Login, Secure, Sharing, Searching, Password, Personal Information, Private Information		Spam, Cookies, Copyright, Malware, Digital Footprint, Computer Virus, Phishing, Permission, Password, Reputable Source, Reliable Source	

SMSC in Computing	
Spiritual	Social
- Express their feelings and appreciation of ingenuity, innovation and beauty through different media - Reflect on their own and others' lives and the impact Computing has on this - Demonstrate they are reflecting on their experiences and learning from reflection - Respect the efforts and feedback of others and appreciate different ways in solving problems - Accommodate the ideas of others and enable others to succeed - Gain an appreciation of the innovations and achievements of past individuals	- Demonstrate personal qualities such as thoughtfulness, honesty, respect and independence - Investigate what it means to socialise using media, and the benefits and downfalls to it - Discuss the impact of the use of digital devices on the way we interact with others - Look at security risks to our personal data and how to reduce these risks - Consider the social responsibilities for those usual digital devices
Moral	Cultural
- Investigate the impact of digital inclusion, who is it available to, and the digital device locally, nationally and globally - Consider accessibility issues when evaluating appropriateness of digital products - Develop their understanding of the development of online communities and its implications for an individual's learning, leisure and social interactions - Learn that the growth of social networking has potential risks as well as benefits - Use their knowledge of right and wrong in the media (e.g. violence, bias, images and messages, etc.) model positive relationships and interactions, fairness, integrity and respect for people - Discover how to select their sources and decide on how much trust can be placed in them	- Learn about the wider world - Access information about the wider world through the internet - Explore the sights and sounds of other cultures - Create and share information about others - Explore how the internet connects us with and in different environments
British Values	
- Online etiquette – how to engage in online communities positively and how to be a respectful digital citizen, including appreciating the viewpoints of others - How to select information from online sources that reflect different viewpoints - The dangers of the internet are taught and what to do with any online uncomfortable behaviour or materials they see - Cyber bullying and the legal implications	