

# THE VAYNOR CURRICULUM

## COMPUTING SEQUENCE



### INTENT



#### Love for Learning:

All children will have a positive, growth mindset towards computing and technology, understanding its importance in everyday life and within our world. They will be inspired to improve the world around them, seek to include others, be other-centred and celebrate difference.



#### 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 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 everyday life.

	ONLINE SAFETY (taught explicitly and in incidentally) (Digital Literacy)	PROGRAMMING (Computer Science)	Information Technology	TECHNOLOGY IN OUR LIVES
<b>EYFS</b>	<p>Be kind to my friends. Be careful with technological devices. Ask an adult when I want to use the Internet. Talk about the amount of time I spend using a computer / tablet / game device. Tell an adult when something worrying unexpected happens. while I am using the Internet.</p>	<p>Make a floor robot move randomly. Use simple software to make something happen. Make choices/predictions about the buttons and icons I press, touch or click on, for example by thinking about how many times I need to press the forwards button to reach Teddy.</p>	<p>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 my learning, for example by taking a photograph of a snail and labelling it with the caption 'a snail has a foot'.</p>	<p>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.</p>

<p><b>Year 1</b></p>	<p>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.</p>	<p>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. 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</p>	<p>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.</p>	<p>Recognise the ways we use technology in our classroom. Recognise ways that technology is used in my home and community. Begin to identify some of the benefits of using technology, for example by interviewing a member of the Office on how they use technology as part of their role.</p>
<p><b>Year 2</b></p>	<p>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.</p>	<p>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.</p>	<p>Children demonstrate an ability to organise data using, for example, a database such as 2Investigate 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.</p>	<p>Talk about the differences between the Internet and things in the physical world. Say why I use technology in the classroom. Say why I use technology in my home and community. Identify benefits of using technology including finding information, creating and communicating. Start to understand that other people have created the information I use, <b>for example</b> by proposing new uses for technology and predicting future uses of technology for entertainment.</p>

<p><b>Year 3</b></p>	<p>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.</p>	<p>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 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.</p>	<p>Children demonstrate an ability to organise data using, for example, a database such as 2Investigate 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.</p>	<p>Save and retrieve work on the Internet, the school network, or my own device. Talk about the parts of a computer. Tell you ways to communicate with others online. Describe the World Wide Web as the part of the Internet that contains websites. Understand how devices connect to create a network, for example by using a ring topology). Use search tools to find and use an appropriate website. Think about whether I can use images that I find online in my own work.</p>
<p><b>Year 4</b></p>	<p>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.</p>	<p>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</p>	<p>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.</p>	<p>Say whether a resource I am using is on the Internet, the school network, or my own device. Tell you how to check who owns photos, text and clipart. Recognise that websites use different methods to advertise products. Use hyperlinks to create links to external content, for example by creating an interactive presentation with Microsoft PowerPoint. Identify ways in which computers control external hardware. Control lights on a Crumble controller, for example by wiring up colour changing lights to a Crumble Controller and experimenting with red, green, and blue values. Integrate colour changing lights within my own programs, for example by integrating a programmed Crumble Controller into a DT project, to create a flashing decoration or some wearable technology.</p>

		<p>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.</p> <p>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.</p>		
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**Computing Vocabulary**

EYFS	Year 1	Year 2	Year 3	Year 4
Beebot, direction, mouse, keyboard, monitor, ipad, tablet, printer, record, play, pause, cameras, whiteboards, touchscreen	code, bug, predict, debug, algorithms, retrieve, amend, digital, device, save, load, Privacy, online safety, app, web/website (all yr groups), mouse, mousepad, keyboard, laptop, computer, tablet, smartphone, printer	logical reasoning, predict, program, debugging, algorithms, relevant, retrieve, purposeful, manipulate, personal information, private, format, code Privacy, online safety Sequence, repeat, forever. Crop, frame, edit, enhance, close up.	digital, media, video, audio, image, download, upload, attachment, text, font, copy, paste, Information WAN, LAN Privacy, online safety, Cut, copy, paste, bold, italic, underline, justification. Presentation (slideshow).	logical reasoning, content, contact, algorithm, detect, capture, device, graphics, manipulate, Debug, Search Engine Privacy, online safety I/O controller (crumble controller) Software, hardware, Webpage, WebCrawler. LED.

## SMSC in Computing

### Spiritual

- Express their feelings and appreciation of ingenuity, innovation, beauty through different media.
- Reflect on their own and others' lives and the impact ICT 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.

### Social

- Demonstrate personal qualities such as thoughtfulness, honesty, respect for difference, moral principles, independence, inter-dependence.
- Investigate what it means to socialise using ICT media – the benefits and the pitfalls 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 using digital devices – responsible for social good

### Moral

- Investigate the impact of digital inclusion, who is it available to, and the digital divide 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 i.e. violence, bias, images and messages etc. model positive relationships and interactions, fairness, integrity, respect for people.
- Discover how to select their sources and decide on how much credence can be placed in them.

### Cultural

- 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 other cultures.
- Explore how ICT connects us with and in different environments.

### British Values

Pupils are taught about:

- Online 'etiquette' – how to engage in online communities positively and how to be a respectful digital citizen (appreciate the viewpoints of others)
- How to select information from online sources that reflect different viewpoints (engagement with democracy)
- The dangers of the internet are taught and what to do with any online uncomfortable behaviour or material they see (contribute positively to life in modern Britain)
- Cyber bullying and the legal implications.