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Computing at Hayes: Subject Story

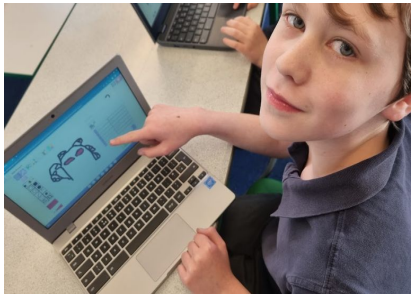
Would you consider a career in computing/technology?

Yes, because our teachers have been helping us. I feel confident and that I will have a successful career of computing in my life.' Max (Y6)

'Yes I would like a job using computers and technology.' Jack N (Y5)

'I'd love to be a computer expert! I was thinking of being a soldier when I'm older, but maybe I could become a decoder like the Brits in WW2. I think that would be amazing.' George (Y6)

'Yes, because it would be fun'. Tahlia (Y3)



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The Hayes Curriculum Vision Statement

At Hayes, we strive for our children to push beyond any perceived idea of potential, to be all they can be, regardless of background. Our vision is for all of our children to leave us as good human beings- happy, kind and responsible. Our curriculum is integral in shaping the children to become independent and life-long learners. Our curriculum aims to equip our children with the ability to ‘think’ in order to make sense of an ever-changing world. The breadth our curriculum provides is underpinned by thinking. This thinking will allow our children to make sense of the world around them and before them in order that they can live fulfilling and happy lives, being all they can be.

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Intent: Computing

Our intention at Hayes is to ensure that every child is able to access a computing curriculum that both challenges and supports them in achieving their very best, especially as computing is part of their everyday life. There is an immense value to technology and we want our children to see its value, as well as be safe users in the process. They will become responsible, competent, confident and creative users of information and communication technology.

The National Curriculum for Computing aims to ensure that children:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

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Intent: Computing

Our computing curriculum is based upon the scheme of learning designed by Purple Mash and supplemented with online safety resources from Childnet and the UK Safer Internet Centre. It is comprised of the three aspects below.

Computer Science

The children at Hayes learn to create algorithms and computing vocabulary, including programming, algorithm, debug, repetition and coding. In each year group, they practically explore writing code and creating programs, as well as using logical reasoning to explain how algorithms work.

Information Technology

This strand focuses on understanding the internet, using search technologies efficiently and collect, evaluate and present data and information.The children will apply their knowledge and skills with information technology to support and enhance their learning across the wider curriculum.

Digital Literacy

We aim to provide children with the tools to stay safe online. In a world where any information is accessible at all times, and any information can be posted and shared by anybody, we strongly value the importance of equipping children at Hayes with the knowledge and tools to think critically about the validity of reliable facts from ones that are not. We believe it is crucial that children understand the importance of not sharing personal information online and are able to consistently make safe choices. We aim for them to understand themselves as individuals within their community, but also members of a wider global community as a responsible digital citizen.

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Intent: Computing

Substantive Knowledge

Substantive knowledge in computing at Hayes School, is based on the key concepts of Computing – Digital Literacy, Computer Science and Information Technology. In our computing curriculum, this knowledge and enquiry is taught within real-life contexts (where possible), including key vocabulary, which progresses through the year groups. Progressing from Nursery to Year 6, children build on prior knowledge in a sequence of small steps,

Disciplinary Knowledge

Disciplinary knowledge in computing at Hayes School, involves children applying what they have learned to real-life situations by planning/ designing, creating, editing and evaluating a range of applications. Computational thinking enables children to work out exactly what to tell the computer to do using a range of concepts and approaches.

'Computing lessons are one of my favourite lessons!'
Ruby Y4

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Implementation: Computing

Purple Mash

As a school, we have chosen to teach from the programme, Purple Mash. Children from EYFS through to Year 6, follow this scheme, which means they participate in enjoyable, engaging lessons that see them achieve their full potential. Following the carefully mapped out scheme, means our curriculum is ambitious for all.

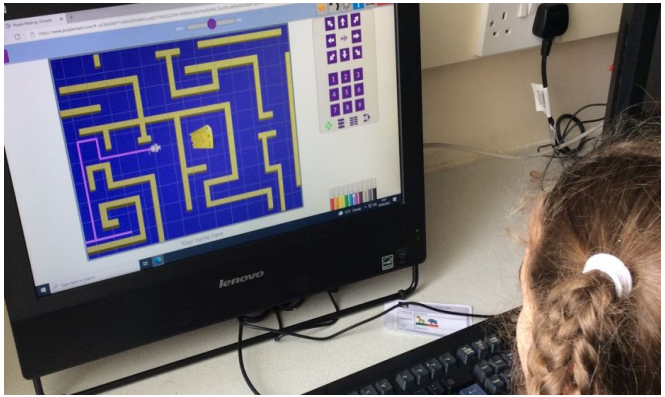
Challenge, support and independence are provided through the use of Purple Mash 2Dos, which lead children through carefully structured lesson activities. In addition, our well-trained staff enhance provision still further through direct and guided support and setting additional challenge where appropriate.

Using this programme, ensures the children progress throughout their time here at Hayes and we adapt the lessons to suit the needs of the children in our class and strive to address inclusion and disadvantage with the implementation.

What is your favourite Purple Mash lesson?

'2Type.' Bella-Rose
'Coding.' Alfie
(Y3)

Coding, as I didn't really know how to code before, but now I'm quite good at it and sometimes play coding games at home.
Jessica (Y5)



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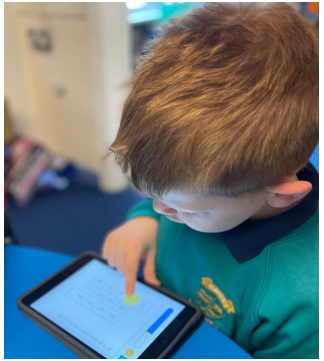
Implementation: Computing



doodlelearning

Spelling Shed

TimesTables RockStars

How else do we use ICT?

- The children have daily access to a range of technological devices, such as iPads, tablets, chromebooks and desktop computers to support their learning.
- Every class has access to the ICT suite once a week, as well as a supply of ipads and chromebooks in their classrooms.
- Children from EYFS to Year 6, are encouraged to use these devices to aid their learning across the curriculum, on top of the discrete computing lessons that where possible, link to the learning experience.
- Children access the following educational resources using the computing equipment during the day: Accelerated Reader, Times Tables Rock Stars, Numberbots, Spelling Shed and Doodle Maths.

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'I love using tablets.'
George YR

Knowledge and skills progression: Computing

EYFS, including Nursery

We aim to provide our pupils with a broad, play-based experience of computing in a range of contexts.

We believe that recording devices can support children to develop their communication skills. This is especially useful for children who have English as an additional language.

Early Years learning environments should feature ICT scenarios based on experience in the real world, such as in roleplay. Pupils gain confidence, control and language skills through opportunities to 'paint' on the interactive board/devices or control remotely operated toys.

Outdoor exploration is an important aspect, supported by ICT toys such as metal detectors, controllable traffic lights and walkie-talkie sets.

During our dinosaur topic, the children loved finding out new information through websites and different apps. They independently scanned the QR codes, which took them to a range of dinosaur child friendly sites.

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Knowledge and skills progression: Computing

EYFS

The current ELG for Technology is:

- Children recognise that a range of technology is used in places such as homes and schools.
- They select and use technology for particular purposes.
- The children in reception have opportunities to develop their understanding by: Interacting and accessing a variety of games (maths, phonics etc) and tools using the IWB to develop hand/eye coordination and listening and understanding skills.
- Know that we can use the IWB/laptop to find information, watch videos, look at photos, print resources.
- Making use of the Ipads to complete apps (maths, phonics, art, etc) and know that we can use the internet as a source to find information.
- Use Ipads to take photos and record videos as well as be able to look back and play them.
- Have access to a range of toys and equipment which make use of buttons, switches etc to support and develop their understanding through their play. Items such as torches, tills, phones, RC toys, remote controls, light boxes etc.
- Begin to explore Beebots and programme them to move in simple directions.

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Knowledge and Skills Progression: Computing

Focus	Nursery 3 & 4 year olds will be learning to…	Reception
Word processing	I understand that keyboards can be used to input commands onto a computer. With support I can press buttons and start to use a mouse. I can pretend to play with technology in role play and start to show an awareness of its job/presence in the environment. I can spot some letters on the keyboard/touch screen. With support, I can start to record words and phrases into a digital device.	Input commands using the space bar, backspace, enter, letters and numbers on a keyboard on any device (including on a tablet). Input commands using a mouse to control a cursor and use the left click to select options OR use finger control to interact with a tablet (double tap, swipe) • I can play on a touch screen game and use computers/keyboards/mouse in role play. • I can type letters with increasing confidence using a keyboard and tablet. • I can dictate short, clear sentences into a digital device.
Data Handling	I can sort simple objects on a touch screen app.	• I can identify a chart. • I can sort physical objects, take a picture and discuss what I have done. • I can present simple data on a digital device.
Presentation, web design and eBook creation	I can explore simple apps and software and share my ideas. I can use my fingers to move and resize objects through simple apps and software. With support I can record my voice on digital software. (iPads, sound buttons)	Experience simple apps and software and use these to present ideas. I can record my voice over a picture. • I can create a simple digital collage. • I can move and resize images with my fingers or mouse.
Animation	I can animate.	• I can animate a simple image to speak in role • I can create a simple animation to tell a story including more than one character.
Video creation	• I know the difference between photography and video. I can record my friends and play it back to watch it with them.	• I can record a short film using the camera • I can record and play a film • I can watch films back
Photography/Digital art	I can take a photo on a digital device and explain how I did it.	• I can take a photograph and use it in an app • I can use a painting app and explore the paint and brush tools
Augmented Reality and Virtual Reality	• I can scan a QR code.	I can select a QR code and know that it takes me to a specific website. • I can explore a 360 image. • I can talk about AR objects in my class
Sound	• I can record sounds with different resources.	• I can record sounds with different resources • I can find ways to change your voice (tube, tin can, shouting to create an echo) • I can record sounds/voices in storytelling and explanations
Computer science	Talk about different kinds of information such as pictures and words. Move objects on a screen. Draw pictures on a computer/ iPad.	Give commands/instructions e.g. forward, backwards, go, stop, when using simple software/hardware Make choices about the buttons/icons to press, touch or click on when using simple software/hardware • I can follow simple oral algorithms • I can spot simple patterns • I can sequence simple familiar tasks.
Coding and Programming	Make a Bee-Bot move. Choose which buttons to press. Bee-Bots, floor maps, programmable toys To move objects on a screen by using and developing mouse skills.	I can use a mouse, touch screen or appropriate access device to target and select options on screen • I can input a simple sequence of commands to control a digital device with support (Bee Bot)
Safety	Stay on the program that an adult has put on. Be kind to my friends when I use the computer.	Manage a device by correctly closing websites or apps and safely turning on and off. I can recognise that I can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' to somebody who asks me to do something that makes me feel sad, embarrassed or upset. • I can explain how this could be either in real life or online. • I can recognise some ways in which the internet can be used to communicate. • I can give examples of how I (might) use technology to communicate with people I know. I can identify ways that I can put information on the internet. I can describe ways that some people can be unkind online. • I can offer examples of how this can make others feel. I can talk about how I can use the internet to find things out. • I can identify devices I could use to access information on the internet. • I can give simple examples of how to find information (e.g. search engine, voice activated searching).

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Vocabulary Progression: Computing

Red = New Vocabulary

Nursery	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Safe Letters Screen Kind Buttons Keyboard Computer Headphones	Touch Screen Objects Move Resize Pull Click Turn Scroll	Video Photo Photography	Information Pictures Words	Sounds QR codes Record Tablet	Mouse Animate Keyboard
Reception	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
	Computer Mouse Touch Screen Paint Pictures Photograph Close down Apps Websites Turn off	QR codes Games Animation. Record Dictate Device	Explore 360 images Objects Sort Groups Photos Collect Count Organise	Programme Beebots Commands Instructions Matching	Move Resize Images Chart Present Data Digital Movement	Digital Collage. Internet Safe Online Choice Internet

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Knowledge and skills progression: Computing

Key Stage 1

Across KS1, our children will be given opportunities to:

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.
- Create and debug simple programs.
- Use logical reasoning to predict the behaviour of simple programs
- Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
- Recognise common uses of information technology beyond school.
- Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. (NC)

'I like asking my friends' (surveys).
Alannah Y1

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Knowledge and skills progression: Computing

Year 1

Term	Year 1
Autumn 1	Unit 1.1 Online Safety
Autumn 2	Unit 1.2 Grouping and sorting (link to maths - shapes) Unit 1.3 Pictograms
Spring 1	Unit 1.4 Lego Builders
Spring 2	Unit 1.5 Maze explorers Unit 1.6 Animated Stories
Summer 1	Unit 1.7 Coding
Summer 2	Unit 1.8 Spreadsheets Unit 1.9 Tech Outside of School

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Knowledge and skills progression: Computing

Year 1						
	KEY Knowledge	Computer Science		Information technology	Digital literacy	
statement	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.
outcome	Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that an algorithm written for a computer is called a program	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

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Vocabulary Progression: Computing

Year 1

Red = New Vocabulary

Year 1	Online Safety	Grouping and Sorting	Pictograms	Lego Builders	Maze Explorers	Animated Stories	Coding	Spreadsheets
	Log in Username Password Log out Notification Avatars Tools Save Online safety	Sort Criteria	Pictogram Data Collate	Instruction Algorithm Debug Computer Program	Direction Challenge Arrow Undo Rewind Forward Backwards Right turn Left turn	Animation E Book Font File Sound effect Display board	Action Background Code Command Debugging Event Execute Input Object Properties Sound Scale Run Scene	Arrow keys Columns Count tool Lock tool Backspace Cells Delete key Move cell tool Spreadsheet Cursor Clipart Images Toolbox Rows

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Knowledge and skills progression: Computing

Year 2

Term	Year 2
Autumn 1	Unit 2.1 Coding
Autumn 2	Unit 2.2 Online safety
Spring 1	Unit 2.3 Spreadsheets
Spring 2	Unit 2.4 Questioning
Summer 1	Unit 2.5 Effective Searching Unit 2.6 Creating pictures
Summer 2	Unit 2.7 Making Music Unit 2.8 Presenting ideas

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Knowledge and skills progression: Computing

Year 2						
	KEY Knowledge	Computer Science		Information technology	Digital literacy	
statement	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.
outcome	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 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.	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

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Vocabulary Progression: Computing

Year 2

Red = New Vocabulary

Year 2	Online Safety	Questioning	Creating Pictures	Making Music	Coding	Spreadsheets	Presenting Ideas
	Search Display board Internet Sharing Email Attachment Digital Footprint	Pictogram Question Collate Data Binary tree Avatar Database	Impressionism Palette Share Surrealism Template	BPM (beats per minute) Composition Digitally Sound effect Soundtrack	Algorithm Button Collision detection Event Object Nesting Predict Properties Test Timer Text Sequence	Copy and paste Backspace key Columns Cells Count tool Delete key Equals tool Lock tool Delete key Image toolbox Move cell tool Rows Speak tools Spreadsheet	Concept map Node Narrative Animated Presentation

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Knowledge and skills progression: Computing

Key Stage 2

Across KS2, our children will be given opportunities to:

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.
- Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration.
- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (NC)

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Knowledge and skills progression: Computing

Year 3

Term	Year 3
Autumn 1	Unit 3.1 - Coding Unit 3.2 Online Safety (PSHE)
Autumn 2	Unit 3.3 - Spreadsheets (animal information) Unit 3.4 - Touch Typing
Spring 1	Unit 3. 8 - Graphing - links to maths (statistics)
Spring 2	Unit 3. 5 - Email (email an artist) Unit 3.6 - Data branching (plants)
Summer 1	Unit 3.7 - Simulation (robot)
Summer 2	Unit 3.9 Presenting – country of the world presentation

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Knowledge and skills progression: Computing

Year 3							
	KEY Knowledge	Computer Science			Information technology		Digital literacy
Statement	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 concern about content and contact.

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Knowledge and Skills Progression: Computing

Year 3							
	KEY Knowledge	Computer Science			Information technology		Digital literacy
outcome	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 understand how variables can be used to store information while a program is executing	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 make good attempts to 'step through' more complex code in order to identify errors in algorithms and can correct this. e.g. traffic light algorithm in 2Code. 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.

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Vocabulary Progression: Computing

Year 3

Year 3	Online Safety	Branching Database	Simulations	Email	Touch Typing	Coding	Spreadsheets	Presenting Ideas
	Password Internet Blog Concept map Username Website Spoof website PEGI rating	Branching database Database Data Question	Simulations	Communication Email Compose Send Cc Attachment Formatting Report to the teacher Password Address book Save to draft	Posture Tap row keys Home row keys Bottom row keys Space bar	Alert Develop Plan Blocks of command Action Algorithm Collision detection Nesting Debug Execute Object Predict Background Button Command Event Flowchart Output Procedure Repeat Sequence Scene Sound Test Properties Timer Values	Copy and paste Columns Advanced mode <>= symbols Cells Delete key Equals tool Spin tool Move cell tool rows Spreadsheet	Animation Audio Design templates Entrance Font Media Presentation Presentation program Slide Slideshow Stock image Text box Text formatting Transition

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Knowledge and skills progression: Computing

Year 4

Term	Year 4
Autumn 1	Unit 4. 1 - Coding Unit 4. 2 – Online Safety (PSHE)
Autumn 2	Unit 4.3 – Spreadsheets Unit 4.4 - Writing for different audiences
Spring 1	Unit 4. 9 - Making music (link to history -dramatic music as the volcano erupted)
Spring 2	Unit 4.5 – Logo Unit 4.6 - Animation
Summer 1	Unit 4.7 - Effective searching
Summer 2	Unit 4. 8 - Hardware

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Knowledge and skills progression: Computing

Year 4							
	KEY Knowledge	Computer Science			Information technology		Digital literacy
statement	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 technology 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 concern about content and contact.

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Knowledge and skills progression: Computing

Year 4							
	KEY Knowledge	Computer Science			Information technology		Digital literacy
outcome	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. e.g. traffic light algorithm in 2Code. 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

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Vocabulary Progression: Computing

Year 4

Year 4	Online Safety	Logo	Effective Searching	Making Music	Hardware Investigators	Animation	Coding	Spreadsheets
	Computer virus Cookies Copyright Digital footprint Email Identity theft Phishing spam	LOGO BK (backwards) FD (forwards) RT (turn right) LT (turn left) REPEAT SETPC (set pen to a given colour) SETPS (set pen thickness) PU (lift the pen up off the screen) PD (put the pen back down)	Easter egg Internet Search Internet browser Search engine Spoof website Website	Pitch Rhythm Pulse Tempo Dynamics Melody Rippler House Music Texture	Motherboard Graphics card CPU (the part of the computer where operations are controlled) RAM (allows computers to store information) Network card Monitor Speakers keyboard and mouse	Animation Background Frame Flipbook Onion skinning Stop motion Play Sound Video clip	Action Alert Background Button Code block Command Debug Execute Flowchart Nesting Co-ordinate If Predict Prompt Prompt for input Repeat Properties Repeat until Selection Timer Variable Variable value	Average Advanced mode Copy and paste Columns Cells Charts Equals tool Formula Formula wizard Move cell tool Random tool Rows Spin tool Spreadsheet Timer

Red = New Vocabulary

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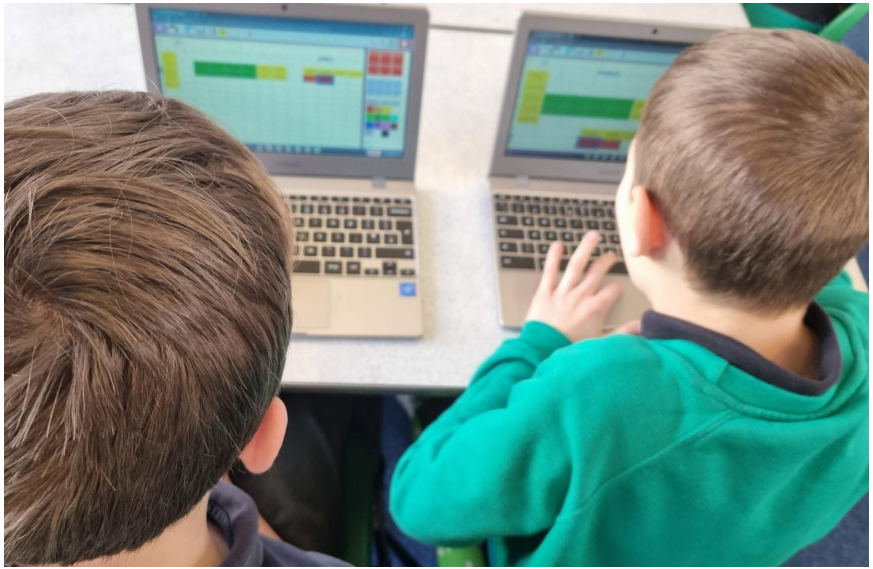
Knowledge and skills progression: Computing

Year 5

Term	Year 5
Autumn 1	Unit 5.1 Coding
Autumn 2	Unit 5.2 Online Safety
Spring 1	Unit 5.3 Spreadsheets
Spring 2	Unit 5.4 Data Unit 5.8 Word Processor
Summer 1	Unit 5.5 Game Creator
Summer 2	Unit 5.6 3D Modelling Unit 5.7 Concept maps



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Knowledge and skills progression: Computing

Year 5							
	KEY Knowledge	Computer Science			Information technology		Digital literacy
statement	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 concern about content and contact.

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Knowledge and skills progression: Computing

Year 5							
	KEY Knowledge	Computer Science			Information technology		Digital literacy
outcome	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

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Vocabulary Progression: Computing

Year 5

Year 5	Online Safety	Modelling	Databases	Game Creator	Coding	Spreadsheets
	Online safety Smart rules Password Reputable Encryption Identity theft Shared image Plagiarism Citations Reference Bibliography	CAD (computer aided design) Modelling 3D Viewpoint Polygon 2D net 3D printing Points Template	Avatar Binary tree Charts Collaborative Data Database Find Record Sort, group and arrange Statistics and reports Table	Animation Computer game Customise Evaluation Image Instructions Interactive Screenshot Texture Perspective Playability	Action Abstraction Algorithm Button Called Co-ordinates Decomposition Event If Nesting Function Object Properties Repeat Physical system Score Sequence Simplify Simulation Tab Timer Variable	Average Advanced mode Copy and paste Columns Cells Charts Equals tool Formula Formula wizard Move cell tool Random tool Rows Spin tool Spreadsheet Timer

Red = New Vocabulary

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Knowledge and skills progression: Computing

Year 6

Term	Year 6
Autumn 1	Unit 6.1 - Coding
Autumn 2	Unit 6.2 - Online Safety Unit 6.4 - Blogging
Spring 1	Unit 6.5 -Text Adventures Unit 6.6 - Networks
Spring 2	Unit 6.3 - Spreadsheets Unit 6.7 - Quizzing
Summer 1	Unit 6.8 – Binary
Summer 2	Unit 6.3 - Spreadsheets

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Knowledge and skills progression: Computing

Year 6							
	KEY Knowledge	Computer Science			Information technology		Digital literacy
statement	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 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 concern about content and contact.

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Knowledge and skills progression: Computing

Year 6							
	KEY Knowledge	Computer Science			Information technology		Digital literacy
outcome	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.

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Vocabulary Progression: Computing

Year 6

Year 6	Online Safety	Networks	Binary	Coding	Spreadsheets	Quizzing
	Digital footprint Password PEGI rating Phishing Screen time Spoof website	Internet World Wide Web Network Local Area Network (LAN) Wide area network (WAN) Network cables Wireless	Base 10 Base 2 Binary Bit Byte Gigabyte (GB) Decimal Denary Digit Machine code Integer kilobyte Switch Nibble Megabyte (MB) transistor	Action Alert Algorithm Background Button Called Debug Command Co-ordinates Decomposition Developer Event Flowchart Function Get input If/else Number variable Nesting	function Advance mode Alignment Calculate Copy and paste Cells Cell reference Charts Count tool Dice Equals tool Formula Formula wizard Random tool Range	Audience Collaboration Concept map Database Quiz

Red = New Vocabulary

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Removing barriers to the computing curriculum for Hayes children (SEND)

Supporting learners with literacy difficulties

- The correct use of vocabulary is modelled, with common errors/misconceptions demonstrated.
- Peers/adult support for reading and interpreting larger sections of text.
- Adult models and breaks down information in clear, easy-to-follow steps.

Supporting learners who struggle with attention

- Praise is used for effort and a growth mindset.
- Neutral displays in the classroom to avoid sensory overload.
- Concise goals are given and steps to achieve them.

Supporting learners who struggle to retain vocabulary

- Opportunities at the start of the lesson to recall key terms from previous ones.
- Knowledge organisers for each unit are on display including key vocabulary with definitions.
- When new terms are introduced they are rehearsed.

Supporting learners who need additional time to develop conceptual understanding

- Model answers are given so that they can be discussed.
- Examples are walked through together with opportunities to let learners ask questions.
- Misconceptions are addressed early.

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Differentiation: Computing

SEND and GDS

Differentiation in computing at Hayes means to provide for each individual child's needs to ensure that they make progress throughout a one off session, or over time. This is done through:

Use of vocabulary/provision of word mats (e.g pictures with word meanings).
Key words recorded in knowledge organisers and on display via working walls and maps.
Small broken down steps (e.g when coding)
Different media (e.g tablet, desktop, chromebook, iPad or unplugged resources)
Outcomes adapted to the learner.
Extension tasks (e.g applying the coding to a different programme than Purple Mash format.)
Questioning and independent research, exploration of programmes.
Peer support (ELF on ELF)
Greater Depth students able to work with less instruction, bringing a higher level of knowledge to the task.

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Implementation: Computing

An example of substantive and disciplinary knowledge by the end of Year 3

Year 3: Substantive Knowledge

Computer Science	Information Technology	Digital Literacy
• I can base a written algorithm for a program upon a real-life situation. (3.1) • I can design an algorithm carefully, thinking about what I want the program to do and how I could turn my algorithm into code. (3.1) • I can identify the difference in using the effect of a timer or repeat command in my code. (3.1) • I can read programs with several steps and predict what it will do. (3.1) • I can identify different ways that the Internet can be used for communication. (3.5)	• I can carry out searches to find digital content on a range of online systems, such as within Purple Mash or on an Internet search engine. (Across units) • I can collect data and input it into software. (3.3, 3.6, 3.8) • I can analyse data using features within software to help such as, formula in 2Calculate (spreadsheets). (3.3, 3.6, 3.8) •	• I can explain the importance of having a secure password and not sharing it with others. (3.2, 3.5) • I can explain the negative consequences of not keeping passwords safe and secure. (3.2, 3.5) • I understand the importance of keeping safe online and behaving respectfully. (3.2)

Year 3: Disciplinary Knowledge

Code	Connect	Communicate	Collect
• I am able to design a program thinking logically about the sequence of steps required. (3.1) • I can experiment with timers in my programs. (3.1) • I can experiment with the effect of using repeat commands. (3.1) • I can identify an error in my program and fix it. (3.1)	• I can consider what the most appropriate software to use when given a task by my teacher. (Across units) • I can create purposeful (appropriate) content and attach this to emails. (3.3, 3.5, 3.6, 3.7, 3.8, 3.9) • I can create a secure password. (3.2)	• I can use email such as 2Email to respond to others appropriately and attach files. (3.5) • I can use communication tools such as 2Email respectfully and use good etiquette. (3.2, 3.5) • I can report unacceptable content and contact online in more than one way to a trusted adult. (3.2)	• I can present data and information using different software such as 2Question (branching database) or 2Graph (graphing tool). (3.3, 3.6, 3.8,3.9)

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Retrieval

Key pieces of knowledge in computing, that we want to stay with our children will be built on each year, so that the information is embedded into their long-term memory.

EYFS, including Nursery	KS1	KS2
Mini and Purple Mash app Paint to create pictures QR codes Animation Photo Exploration and Editing Charts	Algorithms Creating Programs Reasoning Using Technology Uses of IT beyond school Being Safe	Creating Programs Developing Programs Reasoning Networks Search Engines Using Programs Being Safe

Implementation: Computing

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Retrieval

Sticky Knowledge Essential Knowledge and End Points			
	Computer Science	**Information technology**	**Digital Literacy**
EYFS Nursery	• Identify letters on a keyboard. • Record with help. • know a keyboards input commands	• To recognise technology's place in the world around me through role play. • To use a touch screen confidently, including drawing and taking pictures.	• To stay on an app/program an adult has put me on to stay safe. • To be kind to others when using devices.
EYFS Reception	• Create a simple animation. • Programme beebots. • Use the beebot app to give commands and instructions.	• To use a computer mouse and touch screen with confidence. • To use paint to create pictures. • To take a photograph and use it within their pictures. • To know how to close down apps and websites appropriately, as well as turn off computers and iPads correctly. • Use a selection of QR codes to access websites and games. • Record their voice over a picture. • Dictate sentences into a device. • Recording sounds and matching to pictures. • To use their fingers or a mouse to move and resize images • Identify a chart. • Present data on a digital device • To create a digital collage.	• I know how to use the internet with an adult to stay safe online. • I know what to do if I see something that worries me when I am using a digital device.

Implementation:
Computing

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Retrieval

Year 1	• Create a series of instructions and plan a journey for a programmable sprite/toy. • Create, store and retrieve digital content.	• Use a website and a camera. • Record sound and playback. • Talk about some of the IT used in their own homes.	• Use technology safely. • Keep personal information private.
Year 2	• Write a simple program and test it. • Predict what the outcome of a simple program will be (logical reasoning). • Understand that programs require precise instructions. • Organise and retrieve digital content.	• Know how IT is used inside and outside of school.	• Know where to go for help.
Year 3	• Write programs that accomplish specific goals. • Develop a sequence of instructions, including directional instructions.	• Know when it is best to use technology and where is adds little or no value. • Navigate the web to complete simple searches. • Use a range of software for similar purposes. • Collect and present information. • Understand what computer networks do and how they provide multiple services.	• Use technology respectfully and responsibly. • Know different ways they can get help if they are concerned.

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Retrieval

Year 4	• Give an 'on-screen' robot specific instruction that takes them from A to B. • Experiment with variables to control models. • Make an accurate prediction and explain why they believe something is happening. (programming)	• Know how to search for specific information and know which is useful and which is not. • Select and use software to accomplish given goals. • To begin to touch type.	• Recognise acceptable and unacceptable behaviour using technology. • To know different ways they can get help if concerned.
Year 5	• Use technology to control an external device. • Develop a program that has specific variables identified.	• Analyse and evaluate information reaching a conclusion that helps with future developments. • Understand how search results are selected and ranked. • Combine sequences of instructions and procedures to turn devices on and off.	• Understand that they have to make choices when using technology and that not everything is true and/ or safe.
Year 6	• Write a program that combines more than one attribute. • Develop a sequenced program that has repetition and variables identified. • Design algorithms that use repetition and 2-way selection.	• Be aware that some search engines may provide misleading information. • Present the data collection in a way that makes it easy for others to understand.	• Be increasingly aware of the potential dangers in using aspects of IT and know when to alert someone if feeling uncomfortable.

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Knowledge Organiser

Each unit, in each year group has a knowledge organiser.

This is an example of a Knowledge Organiser for Year 2 Coding.

These are shared with the children at the start of a unit and on display to be referred to throughout.

<u>Implementation: Computing</u>

Purple Mash Computing Scheme of Work: Knowledge Organisers

Unit: 2.1 Coding

Key Learning

- To understand what an algorithm is.
- To create a computer program using an algorithm.
- To create a program using a given design.
- To understand the collision detection event.
- To understand that algorithms follow a sequence.
- To design an algorithm that follows a timed sequence.
- To understand that different objects have different properties.
- To understand what different events do in code.
- To understand the function of buttons in a program.
- To understand and debug simple programs.

Key Resources

purple mash

2Dos

Free code chimp

Tools

Key Vocabulary

Action
Types of commands, which are run on an object. They could be used to move an object or change a property.

Algorithm
A precise step by step set of instructions used to solve a problem or achieve an objective.

Background
The part of the program design that shows behind everything else. It sets the scene for the story or game.

Button
An object on the screen which can be clicked on.

Collision Detection
Detecting when two characters on the screen touch each other.

Debug/Debugging
Looking for any problems in the code, fixing and testing them.

Design Mode
Used to create the look of a 2Code computer program when it is run.

Event
Something that causes a block of code to be run.

Key Pressed
Pushing down a key on the device's keyboard.

Nesting
When you write a command inside something else e.g. a block of commands could be nested inside a timer.

Purple Mash Computing Scheme of Work: Knowledge Organisers

Unit: 2.1 Coding

Key Vocabulary

Object
An element in a computer program that can be changed using actions or properties.

Predict
Say what you think will happen when a piece of code is run.

Properties
All objects have properties that can be changed in design or by writing code
e.g. image, colour and scale properties.

Run
To cause the instruction in a program to be carried out.

Scale
The size of an object in 2Code.

Scene
A visual aspect of a program.

Sequence
When a computer program runs commands in order.

Sound
This is a type of output command that makes a noise.

Test
When code is run to check that it works correctly.

Text
Typed letters on the screen.

Timer
Use this command to run a block of commands after a timed delay or at regular intervals.

When clicked/swiped
An event command. It makes code run when you click or swipe on something (or press/swipe your finger on a touchscreen).

Key Questions

What is an algorithm? Why is it useful in coding?

An algorithm is a step-by-step set of instructions used to solve a problem or achieve an objective.
A clear algorithm can help you to create code that does what it is supposed to do.

Why is it important to know there are different object types?

Different object types can do different actions. For example, in 2Code, an animal object can do actions such as up, down and stop. A turtle goes forward, backward, pen down and pen up.

If you are good at coding, you don't need to debug. Is this true?

All coders need to debug to make sure that their program works correctly, and the code does what they intended. As you get better at coding, your programs will get more complex and debugging gets even more important.

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Prior and Future Learning Links

Each unit, in each year group has a document outlining prior and future learning.

One example is for a Year 5 unit on coding. It shows you what they have learned to this point and where the learning will go after.

The second shows the progression of online safety as the children travel through the school.

Implementation: Computing

Unit 5.1 - Coding: Prior and Future Learning Links

Unit 1.1 Coding
- Introducing block coding
- Objects and actions
- Events (Click event, sound output)
- Executing a program
- Design view: Planning

Unit 1.4 Lego Builders
- Algorithms
- Logical decision making
- Sequencing instructions
- Following instructions

Unit 1.5 Maze Explorers
- Coding a 'turtle'
- Creating programs using sequencing and repeat
- Visual use of the Logo programming language
- Program logic and structure

Unit 2.1 Coding
- Algorithms
- Collision detection
- Timers
- Object types
- Buttons
- Debugging

Unit 2.4 Questioning
- Logical decision processing
- Forward planning to achieve a solution

All units
- Use of 2Dos
- Saving, opening and editing work
- Sharing work
- Copying and pasting
- Mouse, keyboard and device skills

Unit 3.1 Coding
- Flowcharts
- Timers
- Repeat
- Code, test, debug process

Unit 3.6 Branching Databases
- Logical decision processing
- Modelling selection on a binary model.

Unit 4.1 Coding
- Code, test, debug process
- IF statements
- Repeat Until and IF/ ELSE Statements
- Number Variables

Unit 4.5 Logo
- Text-based coding
- Utilize understanding of coding structures

Unit 4.6 Animation
- Sequencing and animation in logical steps

Unit 5.1 - Coding

Unit 6.1 Coding
- Using Functions
- Flowcharts and Control Simulations
- User Input

Unit 6.5 Text Adventures
- Development from text-based coding
- Maintaining a mental map
- Debugging skills

Unit 6.8 Binary
- Use of 2Code to understand binary conversion algorithms

Unit 1.1 - Online Safety & Exploring Purple Mash: Prior and Future Learning Links

Unit 1.1 - Online Safety and Exploring Purple Mash

All units
- Use of 2Dos
- Saving, opening and editing work
- Sharing work
- Copying and pasting
- Mouse, keyboard and device skills

Unit 2.2 Online Safety
- Share to a displayboard
- Approval process
- Sharing online
- Email simulations
- emotional impact of communications

Unit 2.5 Effective Searching
- Search engine
- Digital footprint
- Privacy

Unit 3.2 Online Safety
- Good Passwords and password privacy
- Communication methods
- Shared blog
- Reliability of information and spoof websites
- Appropriate ratings
- Emotional effects
- Cyberbullying
- Reporting problems

Unit 3.5 Email
- Evaluating communications
- Email safety
- Sharing images - safety
- Not meeting
- Attachments

Unit 4.2 Online Safety
- Phishing
- Digital footprint
- Malware and viruses
- Plagiarism
- Screen time

Unit 4.7 Effective Searching
- Reliable sources
- Search algorithms - impact on what you see

Unit 5.2 Online Safety
- Responsibility to others when sharing
- Sources of support
- SMART rules
- Sharing passwords
- Image manipulation
- Citing sources
- Searching
- Reliability

Unit 5.8 Word Processing
- Use of images
- Plagiarism
- Citing sources

Unit 6.2 Online Safety
- Responsibility to others when sharing
- Minimising exposure to risks
- Sources of support
- Screen time
- Being a bystander

Unit 6.4 Blogging
- Impact of communication on the audience
- Appropriate comments

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Real-life Contexts

At Hayes, we fully appreciate and understand that our children learn best when they know the reason behind why they are learning something. We make sure in computing, we link the skill they are learning to a real-life context to give it meaning and value. For example, Year 5 took part in the European Astro Pi Challenge.

The children were excited to receive confirmation and certificates that their messages had been displayed on the International Space Station satellite. They were given the coordinates on a map to show them where the satellite was when this happened. Some of them had their coding shared on the other side of the world in Australia and New Zealand.

Internet Safety Day Overview

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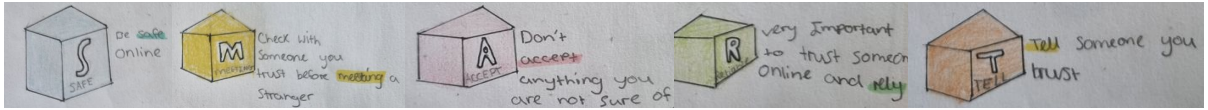

Each year group had a specific strand of online safety to focus on, alongside knowing the SMART rules.

	Safer Internet Day Objectives	Success Criteria
EYFS	To know to use the internet with an adult to stay safe online.	• Children can make suggestions for what the internet can be used for. •Children will understand what the internet is. • Children know to use the internet with a trusted adult and tell them when things upset them.
Year 1	To identify ways to communicate safely online.	• Children can explain what each letter of SMART stands for. • Children can spot when something online might not be safe. • Children can explain what to do if something online is not safe or upsets them. • Children can make links between the offline and online world.
Year 2	To identify ways we leave a digital footprint or trail online.	• Children can explain what a digital footprint is. • Children can give examples of things that they would not want to be in their digital footprint.
Year 3	To identify how the internet can be used to help us to communicate effectively.	• I can identify online communities I am a part of. • I can identify different forms of online communication. • I can discuss the positive and negative aspects of online communities. • I can discuss the differences between communication in real life and online.
Year 4	To identify how a message can hurt someone's feelings. To explain how to respond to a hurtful message online.	• Children know how to respond to a hurtful message or comment online. • Children can edit their own messages and comments to make sure they are not being unkind. • Children can explain why other people may be hurt by messages or comments
Year 5	To apply online safety rules to real life scenarios.	• Children critically think about the information that they share online both about themselves and others. • Children know who to tell if they are upset by something that happens online. • Children can use the SMART rules as a source of guidance when online.
Year 6	To identify similarities and differences between bullying and cyberbullying. To explain good strategies to deal with cyberbullying.	• Children can say what bullying and cyberbullying are. • Children can suggest ways in which people could deal with cyberbullying. • Children understand that cyberbullying can be as harmful as in-person bullying. • Children understand that what they share impacts upon themselves and upon others in the long-term. • Children know about the consequences of promoting inappropriate content online and how to put a stop to such behaviour when they experience it or witness it as a bystander. • Children' actions demonstrate that they also feel a responsibility to others when communicating and sharing content online.

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Internet Safety

At Hayes, we know how important it is our children are equipped with the knowledge, strategies and awareness to stay safe online. Not only should they know this, but they should be encouraged to apply these and reflect on their behaviour when they use devices and the internet.

Annually, we celebrate Internet Safety Day. We spend the day focusing our learning on ways to stay safe online. This year, we created information posters alerting other children how to stay safe online. We also had a competition to create a Hayes School mascot to symbolise Online Safety.

Introducing our first ever mascot and symbol for Online Safety…

Super Online Strawberry - designed by Jack C in Year 5

Internet Safety Day Posters: EYFS & KS1

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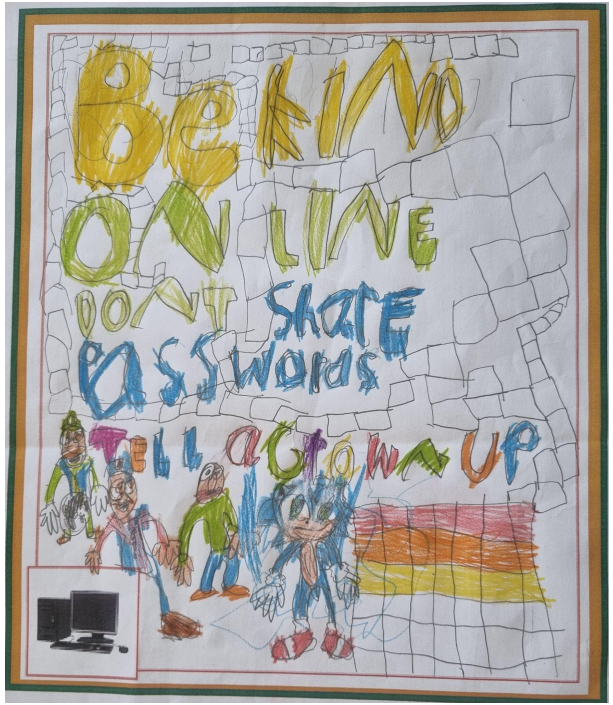
EYFS

YEAR 1



YEAR 2

Impact: Computing

Internet Safety Day Posters: LKS2

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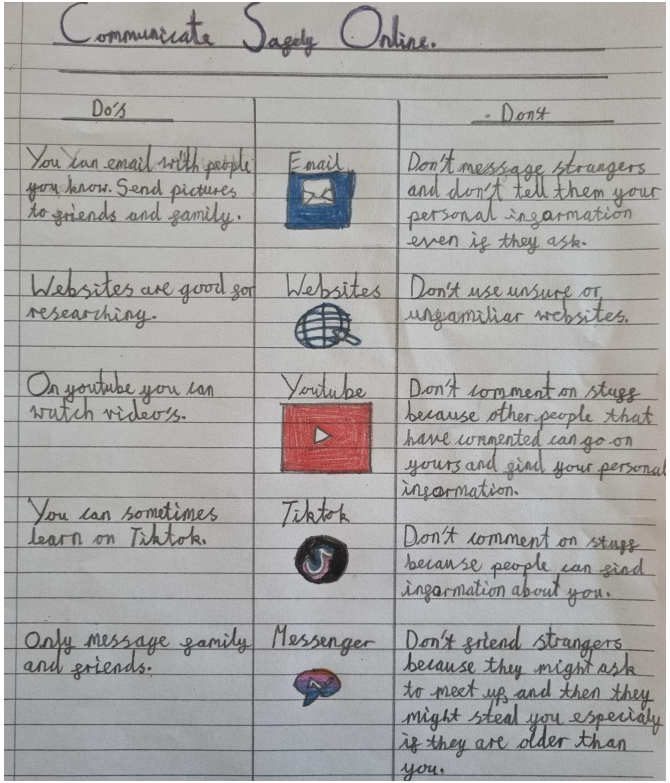


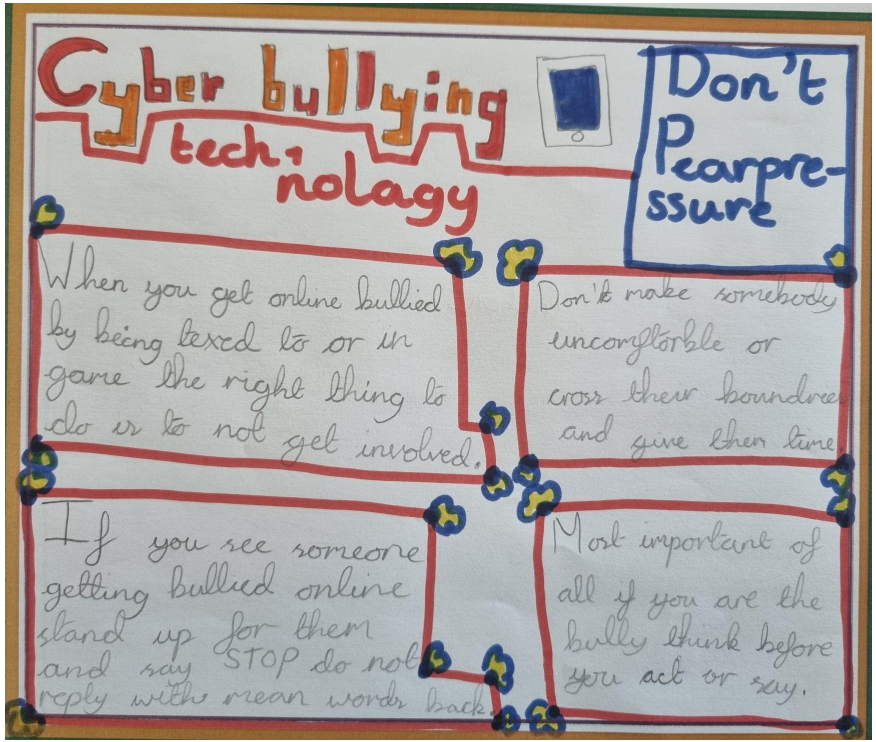
Communicate Safely Online.

Do's		Don't
You can email with people you know. Send pictures to friends and family.	Email	Don't message strangers and don't tell them your personal information even if they ask.
Websites are good for researching.	Websites	Don't use unsure or unfamiliar websites.
On youtube you can watch video's.	Youtube	Don't comment on stuff because other people that have commented can go on yours and find your personal information.
You can sometimes learn on Tiktok.	Tiktok	Don't comment on stuff because people can find information about you.
Only message family and friends.	Messenger	Don't friend strangers because they might ask to meet up and then they might steal you especially if they are older than you.

Do you enjoy computing lessons?

'Yes, because you get to know about the safety and it is fun.'
Zeb Y4

YEAR 4



Cyber bullying technolagy

Don't Pearpressure

When you get online bullied by being texed to or in game the right thing to do is to not get involved.

Don't make somebody uncomfortable or cross their boundries and give them time

If you see someone getting bullied online stand up for them and say STOP do not reply with mean words back.

Most important of all if you are the bully think before you act or say.

Impact: Computing

YEAR 3

Internet Safety Day Posters: UKS2

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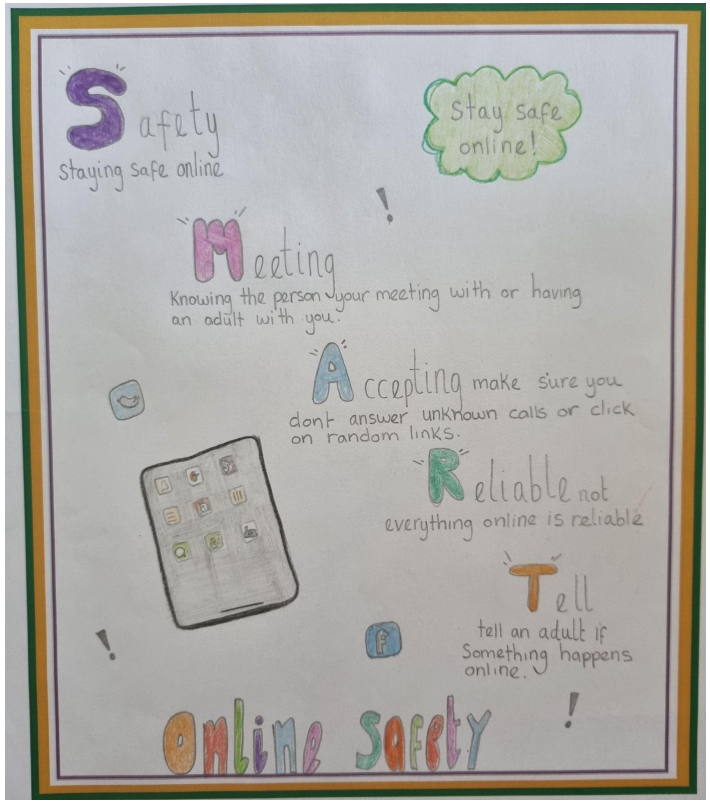
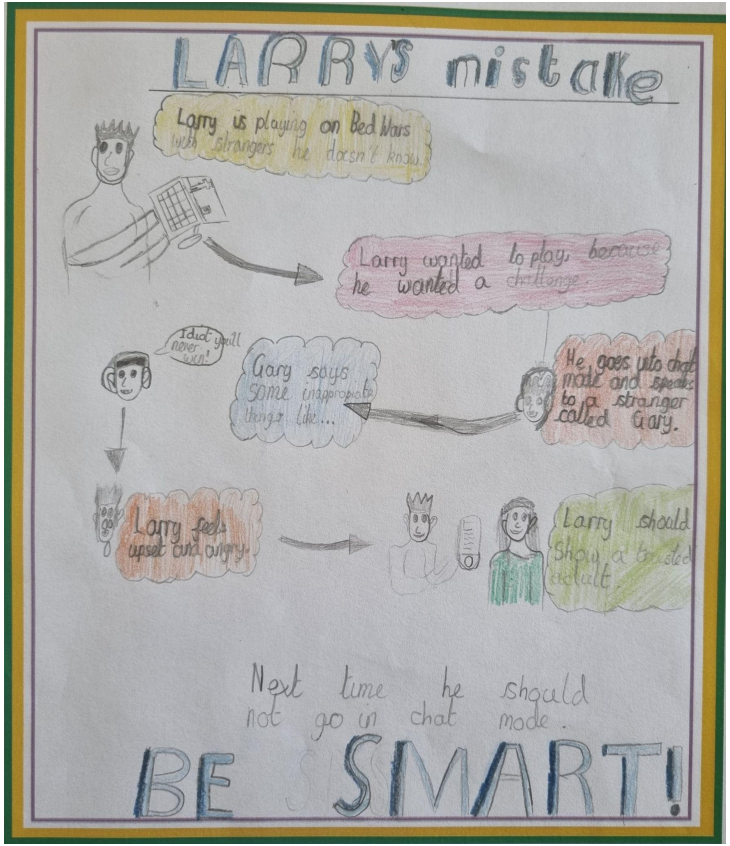


YEAR 6



YEAR 5

Impact: Computing

Pupil Voice

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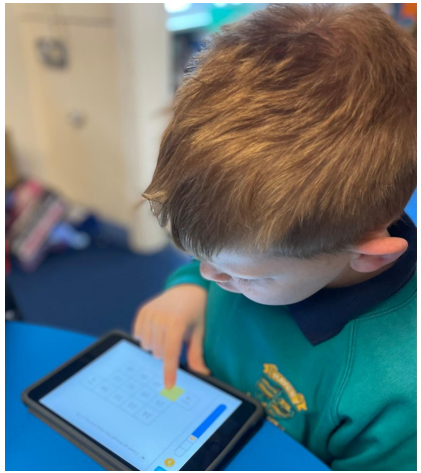
'Computing is a very fun lesson. I love to learn.'
Linhan (Y4)

'They don't really need improving, personally I think we need more of them.'
Kaleb (Y6)



'In Year Five,we were learning about the great Titanic and I am so addicted to Titanic that I couldn't even sleep, because I was trying to do my best in creating a model of the titanic and I succeeded! ' Sydney (Y6)

'The new board helps us learn.'
Poppy-Jo (Y4)

'I like playing games. I don't like any glitching.' Ben (EYFS)

'I make pictures, find out things,play games,watch videos/TV and chat to friends.
Niamh ((Y2)

'We use iPads a lot. I love it!.' Spencer (Y1)

'I like playing with numbers and fun.' (referring to the interactive whiteboard.)
Ania (EYFS)

'On the whiteboard, pictures help us with our learning.'
Keegan (Y4)

'We use the tablets in carousel (doodle), taking pictures and in the afternoon.'
Kian (Y1)

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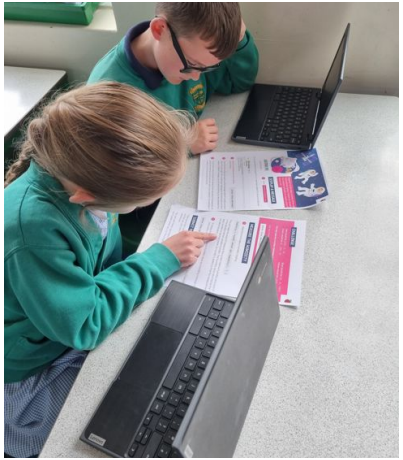
ELF: Empowering Learners Through Feedback

ELF:ELF
Children work in pairs to improve each other's projects and challenge each other to add detail.

ELF HELP
Adults modelling, supporting and demonstrating ways to make improvements on computer tasks,



ELF YOURSELF
Children are given a success criteria or set of instructions to follow with independence and these are used to check how they are doing on a project or task.

Hayes School
1 Feb

This afternoon, the children in Giant Tortoises applied the knowledge they aquired last week in computing (how to use the wizard tool) to a real life problem. They have shown resilience to set up a spreadsheet independently and then used ELF to ELF to help each other discover the formulae they need to enter so that it would automatically work out the area and perimeter. 🐢

#resilience #hayesvalues

Impact of our computing provision

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If you walked in on a Hayes computing lesson, you would see:

- Proficient users of technology, who are able to work both independently and collaboratively, who are not afraid to use resources, instructions and peers to help them.
- Computing hardware and software being utilised to enhance the learning outcomes of our children, across the curriculum.
- Clear progression in technical skills where children can explain the skill they are working on.
- Children confidently knowing how to operate the device and how to switch it on and using them as a tool for learning.
- Motivated and engaged children participating in well-planned, adapted, high quality and inspiring lessons that have a foundational setting structured by Purple Mash.
- Curious learners, who grasp opportunities to continue to explore and make discoveries and implement computing skills they have learned in other lessons across the curriculum and at home.
- Children using ELF to ELF (Empowering Learning through Feedback) to support each other to complete challenges, as well as to share their knowledge and expertise to others.
- Children showing resilience and reflecting on errors, embracing them as learning opportunity to develop.

Impact of our computing provision

Be all you can be
Hayes School

<u>Our destination as *Computer Scientists* at Hayes will be:</u>

- Equipped with the knowledge and skills to access the next stage of their learning, with a clear understanding of how quickly this knowledge will evolve.
- Able to apply their knowledge and skills in utilising information technologies to communicate their ideas to a range of audiences.
- Responsible digital users, able to explain how our SMART rules enable them to stay safe online. This is evidenced through our monitoring of the online spaces and platforms provided by the school e.g. *Purple Mash, Class Dojo Portfolio.*
- Fully aware of the risks of using digital technologies and measures they can take to mitigate against these risks.
- Competent, curious, reflective, critical and safe online users, who respect and utilise technology appropriately and proactively.

Be all you can be
Hayes School

The Hayes Values

Our six values are embedded in all areas of school life and in our computing provision.

Responsibility - Using the internet safely and being respectful to others whilst online.

Success - Accessing programmes, apps and resources effectively.

Aspirations - Aiming to use computer technology independently to enhance learning opportunities.

Resilience - Pursuing challenging technical tasks and not giving up when errors occur.

Discovery - Exploring new skills and concepts, including new and unfamiliar vocabulary.

Friendship - Children supporting and challenging each other when creating games, programmes and coding.