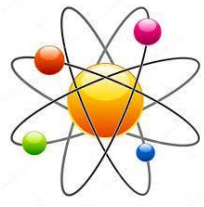
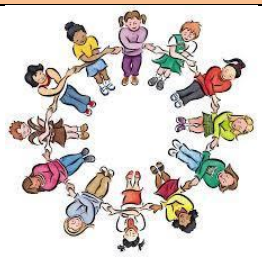
COMPUTING CURRICULUM POLICY 2021-22

			
English	Mathematics	Science	Religious Education
			
Relationships, Sex and Health Education	History	Geography	Languages
			
Music	Art and design	Design and technology	Computing
			
Physical Education	Personal, Social and Health Education		

Introduction

This policy sets out the principles on which we base our practice and reflects the requirements of the 2014 National Curriculum.

Policy development

This policy was developed by the computing coordinator, in consultation with staff, pupils and governors.

Vision

At New Haw Community School, we recognise that technology is developing rapidly; it impacts almost every aspect of our children's lives and is likely to increasingly do so. For this reason, our aim is for pupils at New Haw to become confident, creative and independent learners and users of technology. These skills will be transferable, regardless of the hardware, software or programmes used, allowing them to thrive in our digital world. Pupils at New Haw will become digitally literate; they will know and understand how to be safe and respectful online, as well as be aware of the potential risks. They will know how to stay safe and know where, when and how to seek help. They will be discerning in evaluating digital content and know how to make a positive impact on the online world.

Curriculum design

Curriculum Map- Computing

	Year 3	**Year 4**	**Year 5**	**Year 6**
Autumn 1	Connecting computers **Systems and networks**	The internet **Systems and networks**	Sharing info **Systems and networks**	Communication **Systems and networks**
Autumn 2	Beebots **Programming**	Toy designers **Programming**	Flat-file databases **Data and information**	Web developers **Media**
Spring 1	Desktop publishing **Media**	We are Meteorologists/ Data logging **Data and information**	Game developers **Programming**	Spreadsheets **Data and information**
Spring 2	Branching database **Data and information**	Photo editing **Media**		
Summer 1	Animations **Media**	We are software developers/ Quiz **Programming**	We are vloggers **Media**	Microbits **Programming**
Summer 2	We are bug fixers/ we are programmers **Programming**		CAD **Media/ DT**	Microbits **Programming**
	Office skills/ IT literacy- embedded within all curriculum areas.			

Curriculum map- Online safety

(PSHE/ RSE coverage in blue)

	Year 3	Year 4	Year 5	Year 6
Autumn 1	We are rule writers	We are rule writers	We are rule writers Resolving conflict	We are rule writers Peer pressure
Autumn 2	We are digital friends Privacy and permission	We are standing up to peer pressure	We are responsible for our online actions	We will not share inappropriate images
Spring 1	We are internet detectives	We are aware that our online content lasts forever Treating each other with respect	We are content evaluators	We are safe social networkers
Spring 2	We are aware of our digital footprints	We are online risk managers	We are protecting our online reputation	We are respectful of others
Summer 1	We are netiquette experts	We are respectful of digital rights and responsibilities	We are respectful of copyright Digital resilience	We are online safety problem solvers Building resilience
Summer 2	We are avatar creators	We are careful when talking to digital virtual friends	We are game changers	We are safe gaming experts

Rationale

The computing curriculum can be divided into three inter-related strands: computer science, information technology and digital literacy. All three are securely embedded within the school's computing curriculum, with links being made to other curriculum areas, wherever possible. Our computing curriculum has been constructed as a spiral curriculum; this approach reduces the amount of information lost through forgetting and ensures stronger connections are made for both pupils and teachers.

Careful consideration has been given to ensuring that the computing curriculum is sequenced so that it builds on the learning from previous lessons, units and year groups; where appropriate, activities are scaffolded so that all pupils can succeed and thrive. Exploratory tasks foster a deeper understanding of each concept, encouraging pupils to apply their learning in different contexts and make connections with other learning experiences.

Strand 1: Computer Science

In Year 3, children begin their computer science journey through the use of physical and hands-on hardware, learning and embedding the foundations of programming - in particular, sequencing and algorithms. In Years 4 and 5 they develop this further with more complex skills and knowledge of selection and variables, using screen-based programming software. Year 6 lessons enable pupils to apply the skills and knowledge they have acquired during

their time at New Haw across a variety of devices, setting them up for success in secondary school and beyond.

Computational thinking (decomposition, pattern recognition, abstraction and algorithms) sits at the heart of all computer science lessons, across all year groups. Pupils are taught how to take complex problems and find solutions. Such techniques are applicable across all areas of the curriculum, not just computing.

Strand 2: Information Technology

Information technology can be subdivided into the following areas:

- Media
- Networks and systems
- Data and information

At New Haw, pupils are exposed to a range of units which develop in terms of complexity year on year. Although discrete IT units are taught within the computing curriculum, IT is also embedded across all curriculum areas, using a range of hardware and software - from Google Drive and iPad apps to cameras and data loggers; from basic formatting using Google Docs in lower school (Years 3 and 4) to collaborative tasks and presenting learning using Google Slides in upper school (Years 5 and 6).

The school's computing curriculum allows for pupils to experience a wide range of IT activities, such as word processing, creating images, taking and using photographs and video, creating music and animations, using and creating databases, producing websites and contributing to vlogs. Some IT themes are revisited in later years, allowing the children the opportunity to consolidate and build upon their prior learning. For example, in Year 3, children use iPads to take and subsequently use photographs; in Year 4 they then incorporate these into film, before going on to learn how to edit their digital content in Years 5 and 6.

Strand 3: Digital literacy

Digital literacy is threaded throughout the computing curriculum and encompasses the following main themes:

- Use of devices and applications
- Handling and storing data and information
- Design, creation, and editing content
- Communication using technology
- Moral and ethical behaviour relating to technology
- Online safety.

Of these, online safety is the only theme which is taught discretely. This is to ensure the children learn how to become responsible, competent, confident and creative users of technology. Strong emphasis is placed on the children taking individual responsibility for their own online behaviour and recognising the impact that a person's online behaviour can have on others. One online safety lesson is taught explicitly at the beginning of each half term, with a set theme similar across all year groups. A follow up task is set as a home-learning to consolidate this further and shared with parents via our social media and newsletter.

Online safety is also a focus of the school's PSHE and RSE curriculum. Online safety is additionally taught and discussed on an as-and-when needed basis, responding to events, be they national, local or personal. School continually responds to data regarding pupils and

their online behaviours; from September 2021, for example, a separate online recording category has been added to CPOMS so that online incidents can be monitored more closely.

Assessing progress

At New Haw we have carefully considered what it means to 'get better' at computing. Please see the progression grids attached at Appendix A and B.

Assessment at New Haw is continuous. Low-stakes checks, for example, are built into many lessons to ensure that children know and remember more. In addition, where appropriate, children complete end-of-unit summative assessments. These contain carefully worded questions, which enable teachers, and the children themselves, to clearly see the progress that has been made.

Delivery

In all year groups, children are taught computing by a qualified teacher. At New Haw, teachers are provided with regular CPD opportunities, designed to increase their subject knowledge. Teachers use a variety of teaching strategies, resources and stimuli in order to develop the children's substantive and disciplinary knowledge in a way that is engaging, motivating and inspiring to pupils. Digital technologies are used in order to enhance and develop the children's computational skills, as well as providing many opportunities for unplugged learning to consolidate and secure conceptual understanding.

Enrichment

At New Haw, our extra-curricular computing club provides opportunities to enrich our computing curriculum. We also take part in the annual national 'Safer Internet Day' which is shared with our parents. Our digital leaders programme empowers our pupils to educate their peers about online safety. We also work closely with Sharon Girling, a former law enforcement officer, who provides training and workshops for pupils, staff and parents regarding current online awareness trends and platforms.

Inclusion

At New Haw it is our belief that *all* children, including those with special educational needs and/or disabilities, are entitled to have full access to the school's rich curriculum. Our emphasis is on 'scaffolding up', rather than 'differentiating down'. Our ambition for pupils with SEND is the same as for their peers.

Teachers will carefully consider the ways in which they might reduce the barriers that pupils with specific needs may face in accessing the curriculum. They may, for example, consider in greater detail the building blocks of knowledge that specific pupils need to access the curriculum. They may also consider the most appropriate ways for specific pupils to learn aspects of the curriculum. This might include, for example, redesigning teaching materials, giving pupils more time to complete tasks etc.

Monitoring impact

The computing coordinator, in conjunction with year teams, carries out regular monitoring of the subject, including pupil voice interviews, work-sampling, learning walks and lesson observations. Outcomes are presented at senior leadership meetings and identified key

priorities form the basis of coordinator action plans. These then feed into the school development plan.

Coordinator

The computing coordinator at New Haw is Krishma Vishnu.

Review

This policy was last reviewed on 18th June 2021, and will be reviewed again in summer 2022.

APPENDIX A

PROGRESSION ACROSS STRANDS - COMPUTING

Computer networks and systems				
KS1: recognise common uses of information technology beyond school; use technology safely and respectfully keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies				
KS2 NC	Year 3	Year 4	Year 5	Year 6
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	Identify that digital devices have inputs, processes, and outputs.	Learn and explore the World Wide Web and who owns content.	Explain the input, output, and process aspects of a variety of different real-world systems.	Recognise how the WWW can be used to communicate and be searched to find information. Learn about the World Wide Web as a communication tool through search engines, what influences searching, and comparing different search engines. Investigate different methods of communication.
	Devices can be connected to make networks, i.e. routers and switches.	Recognise the internet as a network of networks, needing to be kept secure.	Understand how information is transferred between systems and devices.	
		Evaluate online content and understand consequences of false information.	Develop skills of working collaboratively online.	Evaluate which methods of internet communication to use for particular purposes
Vocabulary	**Process, input, output, device, digital, network switch, wireless, program**	**As previous** **World Wide Web, router, internet, web page, web browser, download, credit, search**	**As previous** **System, sensing, process, packet, IP address**	**As previous** **Search engine, result, index, web crawler, selection, ranking, searcher, public, private, communicating,**

Programming				
KS1: use logical reasoning to predict the behaviour of simple programs; create and debug simple programs; understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions;				
KS2 NC	Year 3	Year 4	Year 5	Year 6
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	Design and write simple algorithms to control a physical system (Beebots) Solve simple problems	Use Scratch to create simple systems, including using costumes, sound and creating and importing existing Sprites	Use Scratch to create more complex programs, considering success criteria and target audience Build up on year 4 and introduce backgrounds	Design and write more complex algorithms using a different physical system (micro:bit)
Use sequence, selection, and repetition in programs; work with variables and various forms of input and output	Explore various forms of input and output using a physical system and during an introduction to Scratch Use sequence to create simple algorithms and introduce	Introduce repetition and selection (if, then, else) Build upon sequencing Introduce variables at a basic level	Reinforce variables more securely	Revise variables and use this to drive the main focus of the learning. Revisit sequence, selection and repetition.
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs				
Vocabulary **All years:** decomposition, pattern recognition, abstraction and algorithms	**Physical system/ device, input, output, sequence, algorithm, debug, problem solving**	**As previous** **Variable**	**As previous**	**As previous** **Sensing**

Creating media				
KS1- use technology purposefully to create, organise, store, manipulate and retrieve digital content; use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.				
KS2	Year 3	Year 4	Year 5	Year 6
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	Consider how font, size and colour can be used and changed Add images and text to preset layouts Using Google Docs as main platform	As year 3 and format text with underlining, italics and bold. Aligning text in different ways depending on intent. Adding text boxes. Add images, manipulating their size and orientation Using Google Docs as main platform	Build on year 3 and 4, including the use of Google Slides; adding slides, considering slide transitions, changing the background of slides. Introduce shortcuts for more efficiency: Ctrl+b- bold Ctrl+i- italics Ctrl+u- underline	Build on previous year groups using Google Docs, Google Slides and Google Sites- add hyperlinks to Slides and Sites. Consolidate shortcuts from year 5 and introduce: Ctrl+c- copy Ctrl+v- paste Ctrl+x- cut Ctrl+a- select all Use all skills learnt to create web pages, also being introduced to HTML
	Combine music, text and pictures to create animations.	Edit, save, reuse image and photographs using cropping, filtering and retouching tools	Create videos, capturing, manipulating and editing content; combine pictures and text and adding transitions and sound effects/ voice overs. Store, retrieve and export content.	
			Produce 3D models by selecting, moving and deleting shapes; modifying, resizing and grouping. Use learnt skills to create real-world objects	
Vocabulary	**Formatting, images, layout** **Pictures, text, combine, music,**	**As previous** **Manipulate, platform**	**As previous** **Shortcuts, transitions, slide**	**As previous** **Hyperlinks, HTML, web pages, web design, navigation paths,**

	frame, sequence, animate, storyboard	**Crop, reuse, edit, resave, filter, retouch, fake, real, publication**	**Capture, manipulate, edit, combinem, transition, store, retrieve, export** **Model, shape, digital, 3D, 2D, modify, duplicate, real-world, construct**	**copyright, media**

Data and information				
KS1: use technology purposefully to create, organise, store, manipulate and retrieve digital content; recognise common uses of information technology beyond school				
KS2:	Year 3	Year 4	Year 5	Year 6
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 branching databases to collect, organise and present data.	Consider in more depth about how and why data is collected over time. Use physical devices (data loggers) to collect, review, analyse and question the data.	Use tools within a database to order and answer questions about data. Move onto creating charts and graphs and use real-life databases to answer, present and question.	Using spreadsheets, organise data into columns and row, format data to support calculations, apply formulas. Create graphs and charts; evaluate and compare results.
Vocabulary	Branching database, groups, binary tree, attribute property, data, collect, analyse, organise, sort	Automatically gather data, data points, data intervals, physical device, sensors, capture, data	Flat-file database, field, records, column, search, graph, table, chart	Spreadsheet, formula, cell, calculation, operator, column, row, function, graph

APPENDIX B

PROGRESSION ACROSS STRANDS – ONLINE SAFETY

PSHE statements in blue

Online safety				
KS1: use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.				
KS2 NC	Year 3	Year 4	Year 5	Year 6
use technology safely, respectfully and responsibly	Take ownership of creating online safety rules for home and school, based on their personal experiences. Learn about digital footprints- a digital trail that can be found, copied, shared and broadcast- and that it lasts forever. How to stay safe online.	Take ownership of creating online safety rules for home and school, based on their personal experiences- reflect on previous year and edit/ add to this. Develop awareness about viruses, spam, hacking and opening suspicious links on websites/ in emails.	Take ownership of creating online safety rules for home and school, based on their personal experiences- reflect on previous year and edit/ add to this. Learn about copyright laws. Know how to manage their online reputation. To know the impact of the need for peer approval in different situations, including online. To know about the benefits of rationing time spent online, the risks of excessive time spent on electronic devices and the impact of positive and negative content online on their own and others' mental and physical wellbeing.	Take ownership of creating online safety rules for home and school, based on their personal experiences- reflect on previous year and edit/ add to this. Revisit previous years and the concepts of digital citizenship. Know how to use social media safely, including looking at the settings. Know that every has a right to privacy and can refuse permission for images or videos of themselves being uploaded to the internet and that this needs to be respected.

recognise acceptable/unacceptable behaviour	Understand that not all information shared can be controlled. Understand the consequences for online bullying and the role of the bystander.	Understand the positive and negative impact of peer pressure. Understand consequences for knowingly ignoring rights. To know how people's online actions can impact on other people. To know how to keep safe online, including managing requests for personal information and recognising what is appropriate to share or not share online. To know how to report concerns, including about inappropriate online content and contact.	Understand the link between online behaviours and real life effects. Critically assess and understand what constitutes online bullying. Encouraged to take responsibility for their own online actions. To understand unacceptable behaviour when gaming or on profiles.	Understand the negative consequences of sharing nude selfies and learn that sending, sharing and storing inappropriate images of Under 18s is a crime. Develop confidence in saying no when they are posed with a request for inappropriate and/or indecent images of themselves. Understand that once an image is online, it stays online forever. To recognise the effect online actions have on others.
identify a range of ways to report concerns about content and contact.	Introduced to Childline and discuss who their trusted adults are.	As year 3.	Introduced to the CEOP 'Report abuse' button.	As year 5. Know where to get advice and report concerns if worried about their own or someone else's personal safety (including online). To know how to respond safely and appropriately to adults they may encounter (in all contexts including online) whom they do not know.

be discerning in evaluating digital content	Use clues to make choices about whether or not web pages and/or links are trustworthy and safe. Recognise that internet identities can be misleading or not representative of the creator Recall that personal information should not be shared by anyone online who we don't know in real life	As year 3- also that information on the internet lasts forever, whether or not it is true and accurate. Understand that virtual friends are still strangers that they do not know. Apply their knowledge of online safety to decide what information they, as virtual friends, can safely share online.	Be introduced to the concept of online endorsements and use this to develop discerning attitudes, coming to their own conclusions and decisions. Understand that accounts for devices are linked to real-life bank accounts and cost real money. Understand that research, parental controls and device settings are tools we can use to help us game confidently and safely. To understand how the media can influence how we feel about our bodies. Know about how text and images in the media and on social media can be manipulated or invented; strategies to evaluate the reliability of sources and identify misinformation.	Know which apps and online sites have age restrictions and understand why these are in place. Understand the risks involved with online gaming, including exposure to inappropriate content, grooming, bullying, trolling and the use of bribery tactics. Recap device settings and parental control from year 5. To know reasons for following and complying with regulations and restrictions (including age restrictions); how they promote personal safety and wellbeing with reference to social media, television programmes, films, games and online gaming.
Vocabulary	**Consequences, online bullying, cyberbullying, bystander, trustworthy, safe, report, digital footprint/ trail, broadcast, shared, upload, internet, email, digital communication, identity, creator, misleading, avatar**	**Peer pressure, negative, positive, accurate, hacking, hacker, virus, spam, risk, links, illegal, digital citizen, rights and responsibility, virtual**	**Endorse, online reputation, copyright, laws, parental controls, settings and tools**	**Selfies, indecent, crime, age restrictions, social networking, respect, privacy, permission, grooming, trolling, bribery**