Birchwood Avenue Primary School

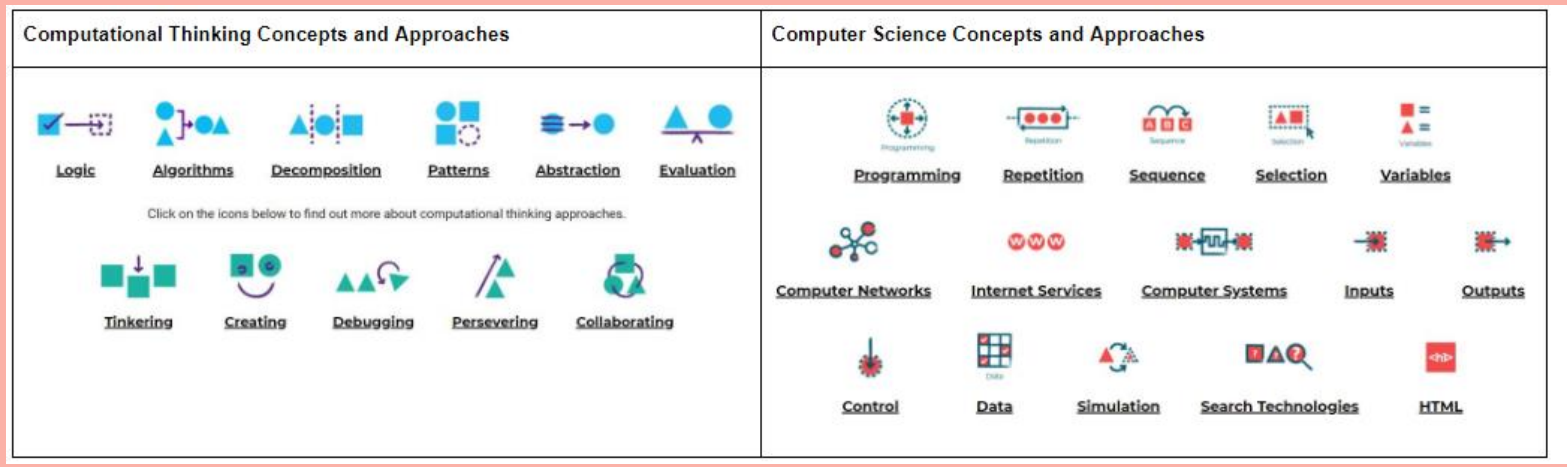
Educating Hearts and Minds through History Education

Intent:

At Birchwood, we aim to prepare our learners for their future by giving them the opportunities to gain knowledge and develop skills that will equip them for an ever changing digital world. With technology playing such a significant role in society today, we believe knowledge and understanding of Computing is of increasing importance for children's future both at home and for employment. Computing Science has a deep link with Mathematics, Science and Design and Technology in which pupils are introduced to a wide range of technologies, building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content.

Computing Syllabus:

At Birchwood Avenue, our tailored curriculum meets the requirements of the National Curriculum and provides us with a comprehensive foundation to enable us to deliver inspiring and engaging lessons from EYFS to Year 6. In addition, Jigsaw's Education for a Connected World is a framework we use to equip children and young people for digital life. It was written by the UK Council for Internet Safety and enables the development of teaching and learning as well as guidance to support children and young people to live knowledgeably, responsibly and safely in a digital world. It focuses specifically on eight different aspects of online education:



1. Self-image and identity	This strand explores the differences between online and offline identity beginning with self-awareness, shaping online identities and media influence in propagating stereotypes. It identifies effective routes for reporting and support and explores the impact of online technologies on self-image and behaviour.
2. Online relationships	This strand explores how technology shapes communication styles and identifies strategies for positive relationships in online communities. It offers opportunities to discuss relationships, respecting, giving and denying consent and behaviours that may lead to harm and how positive online interaction can empower and amplify voice.
3. Online reputation	This strand explores the concept of reputation and how others may use online information to make judgements. It offers opportunities to develop strategies to manage personal digital content effectively and capitalise on technology's capacity to create effective positive profiles.
4. Online bullying	This strand explores bullying and other online aggression and how technology impacts those issues. It offers strategies for effective reporting and intervention and considers how bullying and other aggressive behaviour relates to legislation.
5. Managing online information	This strand explores how online information is found, viewed and interpreted. It offers strategies for effective searching, critical evaluation of data, the recognition of risks and the management of online threats and challenges. It explores how online threats can pose risks to our physical safety as well as online safety. It also covers learning relevant to ethical publishing.
6. Health, well-being and lifestyle	This strand explores the impact that technology has on health, well-being and lifestyle e.g. mood, sleep, body health and relationships. It also includes understanding negative behaviours and issues amplified and sustained by online technologies and the strategies for dealing with them.
7. Privacy and security	This strand explores how personal online information can be used, stored, processed and shared. It offers both behavioural and technical strategies to limit impact on privacy and protect data and systems against compromise.
8. Copyright and ownership	This strand explores the concept of ownership of online content. It explores strategies for protecting personal content and crediting the rights of others as well as addressing potential consequences of illegal access, download and distribution.

Aims

The National Curriculum for Computing aims to ensure that all pupils:

- 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

Learning in EYFS:

The EYFS framework is structured very differently to the National Curriculum as it is organised across seven areas of learning rather than subject areas. At Birchwood Avenue, we follow the statements from the 2020 Development Matters as prerequisite skills for computing within the National Curriculum. The table below outlines the most relevant statements taken from the Early Learning Goals in the EYFS statutory framework and the Development Matters age ranges for Reception to match the programme of study for computing.

The most relevant statements for computing are taken from the following areas of learning:

- Personal, Social and Emotional Development
- Physical Development
- Understanding the World
- Expressive Arts and Design

Reception	Personal, Social and Emotional Development		• Show resilience and perseverance in the face of a challenge. • Know and talk about the different factors that support their overall health and wellbeing: - sensible amounts of 'screen time'.
	Physical Development		• Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
	Expressive Arts and Design		• Explore, use and refine a variety of artistic effects to express their ideas and feelings.
ELG	Personal, Social and Emotional Development	Managing Self	• Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. • Explain the reasons for rules, know right from wrong and try to behave accordingly.
	Expressive Arts and Design	Creating with Materials	• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

EYFS

Understanding the World

EYFS Computational Thinking simple definitions

It is important in the Foundation Stage to give children a broad, play-based experience of Computing in a range of contexts, including outdoor play. Computing is not just about computers. Early years learning environments should feature Computing scenarios based on experience in the real world; such as role play. 'Computational Thinking' is a set of problem solving skills that we can use in everyday life. Children gain confidence, control and language skills through opportunities to explore using non-computer based resources such as metal detectors, controllable traffic lights and walkie-talkie sets. Recording devices can support children to develop their communication skills. This is particularly useful with children who have English as an additional language. Teachers facilitate children's curiosity with challenge and modelling how to use the equipment carefully and safely.

EYFS Computational Thinking Skills	Simple definitions
Tinkering	Playing and exploring
Making	Making things, checking and fixing things
Collaboration	Playing and working collaboratively
Persevering	Not giving up
Logic	Anticipating and explaining is logical reasoning
Pattern	Grouping things, comparing, spotting similarities and differences, working out rules
Abstraction	Naming and labelling, working out what is important, sticking to the main theme, ignoring what is not important, creating a summary
Algorithms and Decomposition	Responding to instructions, ordering things, sequencing things, introducing storylines, working out different ways to do things, breaking problems down into steps

BUILDING KNOWLEDGE AND UNDERSTANDING IN COMPUTING

Computer Progression - Information Technology						
ELG	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
• Learn how to type letters quickly and correctly using a keyboard. • Explore combining painting tools to make digital art. • Complete a simple program on a computer. • Use ICT hardware to interact with age appropriate computer	• Learn how to type words quickly and correctly using a keyboard. • Make simple word processed documents and change the appearance of text. • Use and combine a variety of painting tools to create a picture. • Create simple interactive games to play. • Create a multimedia ebook combining: text, painted pictures and recorded sound. • Compose music using ICT.	• Make word processed documents combining images with text. • Change the appearance of text so it matches a document's theme. • Use and combine a variety of brush styles and painting tools to create a picture. • Compare tools for editing images saved from the web.	• Type text into different programs and change its style by applying a range of font effects. • Create documents and posters by combining text boxes with inserted images. • Create a photo collage. • Create a multimedia ebook combining: text, images voice recordings and shapes. • Shoot a digital photo and explore tools to edit it.	• Type and design a variety of documents, posters and leaflets using ICT. • Learn rules for creating neat word processed work. • Produce a multimedia video topic about topic with music and narration. • Create online multiple-choice quizzes. • Shoot and edit digital photos effectively. • Create a word collage.	• Enter formulae into a spreadsheet to solve calculations and model scenarios, including using =SUM() and statistical functions. • Change the format of cells of cells using: text alignment, borders and data types. • Create pictures using drawing tools (shapes). • Create an animated GIF image. • Create a multimedia on-screen presentation over several slides, adding animation and transition effects to enhance it. • Compare ways for manipulating digital images to enhance them.	• To design an information app that contains multimedia pages linked together using hyperlinks. • Create an on-screen presentation with slide transitions, advanced animation effects and action buttons. • Edit images using layering techniques. • Create and edit a stop motion animation.

Computer Progression – Digital Literacy						
ELG	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
• Navigate around websites with guidance. • Know where to go for help or support when online.	• Know how to use a web browser to navigate a website when doing Internet research. • Search for sensible, suitable images online. • Know rules for staying safe online, including how to safely use Internet media players. • Scan QR codes.	• Know how to use a web browser to navigate websites effectively when doing Internet research. • Search for sensible, suitable images online and insert them into a document. • Know rules for staying safe online and why they must be followed. • Scan and create QR codes.	• Compare digital communication methods, including when they are appropriate to use. • Explain the features of a strong password. • Know what electronic mail is and the services offered by an email client. • Explore a virtual map and compare different viewing options on it. • Understand how to stay safe when playing computer games	• Learn how to search the web effectively. • Learn how to interpret URLs. • Learn about the importance of only joining and using child-friendly websites. • Understand that there are consequences for making bad decisions online.	• Compare online encyclopaedias for doing Internet research on. • Cross-reference search results to help validate information on them. • Describe online hazards and how to respond to them safely. • Explain the 'Minimise it, Report it, Block it' slogan. • Understand the term 'digital footprint' and describe strategies for reducing it. • Know how to stay safe when watching and recording vlogs. • Compare techniques used for manipulating and putting pressure on people online. • Understand how to safely send text messages.	• Learn how to evaluate the usefulness of a website. • Discuss reasons for and against sharing material publicly online. • Understand the importance of online consent. • Learn how to safely share images online. • Research localities using a digital map and use advanced tools like route finders.

Computer Progression – Computer Science: Theory						
ELG	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
• Recognise that a range of technology is used in places such as homes and schools. • Identify the main parts of a computer.	• Identify and name the main components of a computer. • Name common input and output devices of computer systems. • Describe uses of technology beyond school.	• Identify, name and explain the function of the main components of a computer. • Name and compare common input and output devices of computer systems. • Identify and describe uses of technology beyond school.	• Identify uses of technology beyond school and discuss reasons why they are helpful (e.g. robots and simulations). • Understand how a computer stores data.	• Understand the main hardware components of a computer system, including the functions of different input and output devices. • Learn how the Internet works, including how it is structured and how data travels along it. • Understand how search engines operate, including how they rank results.	• Understand how digital images are stored and displayed on a computer. • Describe the impact of technology on society, including on people's: spiritual, moral, social and cultural development. • Understand what ecommerce is and what its impact is. • Find out about the history of computing. • Describe uses of GPS.	•Describe the services offered by the Internet. • Understand the history of WWII computer code breaking.

Computer Progression – Computer Science: Programming						
ELG	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
• Understand that an algorithm is a sequence of instructions which can programmed on a digital device. • Design computer programs in which pictures animate around a scene in an order.	• Follow simple algorithms to make things happen. • Control real and onscreen robots to move along routes using numerical commands (e.g. forward 3). • Design computer programs in which pictures animate around a scene based on different events – at the start, when they are clicked on and when you swipe the screen. • Debug programs with support so they run correctly.	• Write and share simple algorithms for others to follow. • Enter LOGO commands to program a robot turtle so it draws shapes and patterns. • To design computer programs in which pictures animate around a scene based on different events – at the start, when they are clicked on, with button presses and when you swipe the screen. • Debug programs with a little support so they run correctly.	• Use logical reasoning to write simple algorithms explaining the sequence commands should run in. • Program a sequence of actions using timings to create a simple animation. • Write code that includes conditional events (e.g. run commands when objects hit). • Debug programs independently so they run correctly.	• Use logical reasoning to create simple flowcharts explaining the sequence commands should run in. • Enter and repeat LOGO commands to program an on-screen turtle so it draws shapes, patterns and pictures. • Create games and apps that include variables in them (e.g. as a score counter). • Test, debug and improve programs with support.	• Design and program games that include variables (e.g. for a score counter) and changing object properties (e.g. the speed and direction of a moving car). • Generate random numbers in code. • Test, debug and improve programs independently.	• To create flowcharts of real life systems showing how steps of algorithms are linked together. • To design and program games that include conditional events, score variables, random number generators and time limits.

2023-24		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Computing	**EYFS Photograph and digital art** Take a photograph of my junk modelling. Take photos of the different area in class and how to tidy them up. **EYFS Knowledge and Skills** Explore and draw where technology is used in school, at home and in the world around. Playing Simon Says.	**EYFS Photograph and digital art** Using painting tools to make firework pictures. Colouring on busy things. **EYFS Computational thinking** Barefoot computing to give instructions in PE **EYFS Coding and Programming** Input a simple sequence of commands to control a beebot.	**EYFS Data Handling** Create a tally chart of our favourite dinosaurs. Sort dinosaurs into types and take a photo. **EYFS Sound** Record their different character voices and find ways to change the voice.	**EYFS Video creation** Children to record each other in the role play areas.	**EYFS Word Processing** Busy things	**EYFS Word Processing** Typing their favourite memory from the year. **EYFS Sound** Take photos of themselves, record voice over zip open mouth.
	Project Evolve	**Self-Image and Identity** I can recognise, online or offline, that anyone can say 'no' - 'please stop' - 'I'll tell' - 'I'll ask' to somebody who makes them feel sad, uncomfortable, embarrassed or upset. **Online Relationships** I can recognise some ways in which the internet can be used to communicate.	**Online Reputation** I can identify ways that I can put information on the internet.	**Online Bullying** I can describe ways that some people can be unkind online. **Safer Internet Day**	**Managing Online Information** I can talk about how to use the internet as a way of finding information online.	**Health, Well-being and Lifestyle** I can identify rules that help keep us safe and healthy in and beyond the home when using technology	**Privacy and Security** I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location). **Copyright and Ownership** I know that work I create belongs to me.

Year 1	Teach Computing	**Computing systems and networks – Technology around us**	**Creating media – Digital painting**	**Programming A – Moving a robot**	**Data and information – Grouping data**	**Creating media – Digital writing**	**Programming B - Programming animations**
	Project Evolve	**Self-Image and Identity** I can recognise that there may be people online who could make someone feel sad, embarrassed or upset. **Online Relationships** I can give examples of when I should ask permission to do something online and explain why this is important.	**Online Reputation** I can recognise that information can stay online and could be copied.	**Online Bullying** I can describe how to behave online in ways that do not upset others and can give examples. **Safer Internet Day**	**Managing Online Information** I can give simple examples of how to find information using digital technologies, e.g. search engines, voice activated searching.	**Health, Well-being and Lifestyle** I can explain rules to keep myself safe when using technology both in and beyond the home.	**Privacy and Security** I can explain how passwords are used to protect information, accounts and devices. **Copyright and Ownership** I can save my work under a suitable title or name so that others know it belongs to me (e.g. filename, name on content).
Year 2	Teach Computing	**Computing systems and networks – IT around us**	**Creating media – Digital photography**	**Programming A – Robot algorithms**	**Data and information – Pictograms**	**Creating media - Digital music**	**Programming B - Programming quizzes**
	Project Evolve	**Self-Image and Identity** I can explain how other people may look and act differently online and offline. **Online Relationships** I can describe different ways to ask for, give, or deny my permission online and can identify who can help me if I am not sure.	**Online Reputation** I can explain how information put online about someone can last for a long time.	**Online Bullying** I can explain what bullying is, how people may bully others and how bullying can make someone feel. **Safer Internet Day**	**Managing Online Information** I can demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections).	**Health, Well-being and Lifestyle** I can explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment.	**Privacy and Security** I can explain and give examples of what is meant by 'private' and 'keeping things private'. **Copyright and Ownership** I can recognise that content on the internet may belong to other people.

Year 3	Teach Computing	**Computing systems and networks – Connecting computers**	**Creating media - Stop-frame animation**	**Programming A - Sequencing sounds**	**Data and information – Branching databases**	**Creating media – Desktop publishing**	**Programming B - Events and actions in programs**
	Project Evolve	**Self-Image and Identity** I can explain what is meant by the term 'identity'. **Online Relationships** I can explain what it means to 'know someone' online and why this might be different from knowing someone offline.	**Online Reputation** I can give examples of what anyone may or may not be willing to share about themselves online. I can explain the need to be careful before sharing anything personal.	**Online Bullying** I can describe appropriate ways to behave towards other people online and why this is important. **Safer Internet Day**	**Managing Online Information** I can demonstrate how to use key phrases in search engines to gather accurate information online.	**Health, Well-being and Lifestyle** I can explain why spending too much time using technology can sometimes have a negative impact on anyone; I can give some examples of both positive and negative activities where it is easy to spend a lot of time engaged	**Privacy and Security** I can describe simple strategies for creating and keeping passwords private. **Copyright and Ownership** I can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.

Year 4	Teach Computing	**Computing systems and networks – The Internet**	**Creating media - Audio production**	**Programming A – Repetition in shapes**	**Data and information – Data logging**	**Creating media – Photo editing**	**Programming B – Repetition in games**
	Project Evolve	**Self-Image and Identity** I can explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this. **Online Relationships** I can give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours.	**Online Reputation** I can describe how to find out information about others by searching online.	**Online Bullying** I can recognise when someone is upset, hurt or angry online. **Safer Internet Day**	**Managing Online Information** I can describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online.	**Health, Well-being and Lifestyle** I can explain how using technology can be a distraction from other things, in both a positive and negative way.	**Privacy and Security** I can describe how some online services may seek consent to store information about me; I know how to respond appropriately and who I can ask if I am not sure. **Copyright and Ownership** When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it.

Year 5	Teach Computing	**Computing systems and networks - Systems and searching**	**Creating media - Video production**	**Programming A – Selection in physical computing**	**Data and information – Flat-file databases**	**Creating media – Introduction to vector graphics**	**Programming B – Selection in quizzes**
	Project Evolve	**Self-Image and Identity** I can explain how identity online can be copied, modified or altered. **Online Relationships** I can explain how someone can get help if they are having problems and identify when to tell a trusted adult.	**Online Reputation** I can search for information about an individual online and summarise the information found.	**Online Bullying** I can describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying. **Safer Internet Day**	**Managing Online Information** I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful.	**Health, Well-being and Lifestyle** I can describe ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively.	**Privacy and Security** I can explain what a strong password is and demonstrate how to create one. **Copyright and Ownership** I can assess and justify when it is acceptable to use the work of others

Year 6	Teach Computing	**Computing systems and networks - Communication and collaboration**	**Creating media – Web page creation**	**Programming A – Variables in games**	**Data and information – Spreadsheets**	**Creating media – 3D Modelling**	**Programming B - Sensing movement**
	Project Evolve	**Self-Image and Identity** I can identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online. **Online Relationships** I can explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about s.	**Online Reputation** I can explain the ways in which anyone can develop a positive online reputation.	**Online Bullying** I can describe how to capture bullying content as evidence (e.g screen-grab, URL, profile) to share with others who can help me. **Safer Internet Day**	**Managing Online Information** I can explain how search engines work and how results are selected and ranked.	**Health, Well-being and Lifestyle** I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose.	**Privacy and Security** I can describe simple ways to increase privacy on apps and services that provide privacy settings. **Copyright and Ownership** I can demonstrate the use of search tools to find and access online content which can be reused by others.