**Computing Long Term Planning 2021-2022**

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| Computing | Hillfort Specific | **Embody the school’s values** Kindness, resilience, challenge | **Health**With children’s increased use of technology, we are aware that they are spending more time sat playing e-games, watching a screen or using a range of social media. This in turn, is having an impact on their practical, outdoor and physical activity.  | **Multicultural Links****How can we use technology and online learning to allow children to access information, cultures, people and places that they not be able to experience? E.g virtual reality, film, pictures, linking with children in different countries and finding out new information.** |
| Computing Concepts | We have to learn to balance the benefits offered by technology with an awareness of its effects on ourselves and others, including how to keep ourselves safe within the virtual world. | Technology is everywhere.Be able to identify it and have a growing understanding of how it works and its effect. | Machines work when given specific, accurate instructions. | Technology moves quickly: what does the future hold? | Technology can be a tool for creativityMusic productionDigital ArtVideo creation | Geographical barriers can be overcome with technology, connecting us as Global Digital Citizens. |
| Computing Skills  | **Digital Literacy**Self-image and identity, online relationships, online reputation, online bullying, managing online information, health wellbeing and lifestyles, privacy and security and copyright and ownership. | **Information Technology**Word processing, Data handling, Presentations (web design, e Books), Video creation (animation, Augmented reality and green screen) and Digital Art (photography, sound and art)Links with Digital Literacy (audience and design) | **Computer Science** Using Computational Thinking to solve problems such as sequencing steps (algorithms), implementing the algorithm as code and being able to debug mistakes. |

Progression Map

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|  | EYFS | KS1 | LKS2 | UKS2 |
| **Embody the school’s values** Kindness, resilience, challenge | The children will learn how to show kindness to others through role play and specific provision leading to device role play e.g computersThe children will learn how to share the iPads in the classroom and show resilience when completing challenges on the APPs. | The children will learn how to share devices and the importance of reduced screen time. They will learn how to show resilience when using Beebots and practicing debugging programmes and repetition in code.  | The children can apply their computation thinking skill of resilience and challenge when working with code and debugging their algorithms.  | The children can independently approach new computer science challenged with resilience and challenge themselves to build more challenging code.The children will understand the fundamental principles of how to show kindness and resilience online and be able to discuss these confidently.  |
| **Health**With children’s increased use of technology, we are aware that they are spending more time sat playing e-games, watching a screen or using a range of social media. This in turn, is having an impact on their practical, outdoor and physical activity. | The children can use and are aware of how to use technology to exercise e.g cosmic yoga, Joe Wicks workouts on YouTube. | The children can explain why spending too much time of technology can sometimes have a negative impact. | The children can explain and give examples of how technology can be a distractions from other things, in both a positive and negative way. | The children can assess and action different strategies to limit the impact of technology on health (e.g night-shift mode, regular breaks, correct posture, sleep, diet and exercise) |
| **Multicultural Links****How can we use technology and online learning to allow children to access information, cultures, people and places that they not be able to experience?****E.g virtual reality, film, pictures, linking with children in different countries and finding out new information.** | The children have viewed a range of images and films (depicting cultures, people and places around the world) through a range of information technologies.  | With support, the children can search and view content online allowing them to learn about different cultures, people and places.  | The children can independently search and view content online allowing them to learn about different cultures, people and places.The children can filter out appropriate and factual sources of information using their knowledge of URL and trusted organisations.  | The children can independently access information surrounding different cultures, people and places. They can make links using emails, film, message to communities that differ from their own. They can show intrigue, empathy and kindness when leaning about different cultures and religions to become global citizens.  |
| We have to learn to balance the benefits offered by technology with an awareness of its effects on ourselves and others, including how to keep ourselves safe within the virtual world. | The children can identify some rules that help to keep us safe and healthy in and beyond the home when using technology.Follow the Natterhub curriculum. | The children can give examples of rules that keep us safe when using technology.The children can identify some strategies to self-regulate their use of technology.Follow the Natterhub curriculum. | The children can explain why some online activities have age restrictions and why we should follow them. Follow the Natterhub curriculum. | The children understand that some websites and APPs ask to take payment.The children understand systems that regulate content (e.g parental warnings).The children can recognise features of persuasive design to keep users engaged.Follow the Natterhub curriculum. |
| Technology is everywhere.Be able to identify it and have a growing understanding of how it works and its effect. | Technology is included as part of the children continuous provision. The children will learn the terms ‘computer’, ‘ipad’ and ‘camera’. | The children will be able to identify different information technology. They will be able to explain the differences between a digital and non-digital device.  | The children will learn about input, process and output. They will learn how servers and routers work.  | They will learn how data is transferred over the internet. They will explore how the internet allows for communication. |
| Machines work when given specific, accurate instructions.Technology moves quickly: what does the future hold? | The children will be able to talk about what technology they can see around the classroom and what they use at home.  | They will learn that machines follow instructions (through games) and begin to program Beebots (programmable toys).  | They will explore how algorithms through scratch. They will build their understanding of how to debug their algorithms and change the variables to ensure specific, accurate instructions.  | They will look at how to build their own machine (programmable toy). The children will debate how the world is challenges and give their opinion on the future of technology with a specific focus on AI and its implications.  |
| Technology can be a tool for creativityMusic productionDigital ArtVideo creation | The children can record a short film using a camera.The children can use a painting APP to make marks. | The children will learn how to use the camera feature of the on an Ipad to take and edit photos. The children will learn how to use the ‘Paint’ software. They will learn how to create shapes, text and change colours., They will apply this learning to a range of famous artists. | The children will learn how to record and edit audio. They children will apply their knowledge of how to take pictures to create stop motion animations.The children will use programme to create digital shapes and patterns. | The children will learn how to manipulate film using green screen technology and develop a film.  |
| Geographical barriers can be overcome with technology, connecting us as Global Digital Citizens | The children are exposed to technology in school which they may not have access to at home e.g ipads, programmable toys | The children are introduced to Seesaw allowing them to become part of a connected community where they can share their learning with their friends and family.  | The children are introduced to Seesaw allowing them to become part of a connected community where they can share their learning with their friends and family. The children begin to learn how to search and find information through the internet.  | The children will learn how to access a shared drive and learn how to complete work at home and at school. The children learn how to search and find information through the internet.  |
| **Digital Literacy** | Self-image and identity,  | The children will understand that anyone can say ‘no’ when they feel uncomfortable, sad or upset | The children will understand that people online can make them feel upset and to give some examples.They will know that they can speak to an adult if they feel sad. | The children should be able to explain the term ‘identity’ and begin to understand how people represent themselves online and to understand that people may change this identity when online.  | The children will understand that other people can pretend to be someone else including friends) and suggest reasons why.The children can begin to understand how to make sensible choices about their own online identity and be able to identify and evaluate online content relating to gender, disability, culture and other groups and understand to importance of rejecting inappropriate representations online. |
| Online relationships, | The children will begin to recognise some ways in which the internet can be used to communicate, give examples of technology that could be used to do this and give examples of when they should ask permission to do something online. | The children will begin to explain why it is important to be kind and considerate online. They will also begin to understand what information when can and cannot share online. | The children will learn the different between knowing someone online and knowing someone offline. They will explain how you can hurt people feelings with what is said online and have strategies for staying safe interactions online. | The children will recognise health and unhealthy online behaviours. They will also learn how to collaborate constructively online and make positive contributions through resect and positive interactions. |
| Online reputation, | The children understand ways to put information online e.g text, photos and film. | The children understand that information can stay online and be copied. | The children understand that they need to be careful before sharing information online and explain who to ask if they are unsure. | The children can describe ways that information about anyone can be found online and used to make judgements about individuals. They understand how to build a positive online reputation. |
| Online bullying | The children can describe ways that some people can be unkind online and give reasons how this can make people feel. | The children can describe how to behave online, what bullying is and how bullying can make people feel. | The children will understand how bullying behaviours could appear online, how it can different then the physical world and how their content may make other people feel. | The children will describe how people may perceive jokes and teasing ‘banter’, how to report concerns, block abusive users and how can help. |
| managing online information, | The children will begin to be able to search for information online.  | The children can identify devices that can access the internet, use a simple search engine and begin to understand the difference between online information that is real and make up. | The children will example beliefs, opinions and facts. They will begin to learn how to analyse information and make a judgements regarding is accuracy. | The children will look at how online advertising encourages people to buy things online, how technology can impersonate liking things and understand ‘fake news’, ‘targeted ads’ and ‘Photoshop’. |
| Health Wellbeing and Lifestyles, | The children can identify some rules that help to keep us safe and healthy in and beyond the home when using technology. | The children can give examples of rules that keep us safe when using technology.The children can identify some strategies to self-regulate their use of technology. | The children can explain why some online activities have age restrictions and why we should follow them.  | The children understand that some websites and APPs ask to take payment.The children understand systems that regulate content (e.g parental warnings).The children can recognise features of persuasive design to keep users engaged. |
| Privacy and Security and | The children can identify examples of their own personal information (name, address, birthday, age and location).The children can recognise who can be trusted to share information with. | The children understand how and why passwords are used.The children understand some rules on how to keep personal information private. | The children should understand how to create a password and understand the importance of keeping it private. The children will begin to understand that internet use is never fully private. | The children can demonstrate how to create a ‘strong password’.The children will understand that many APPs and websites will keep and share their data.The children can describe simple ways to increase privacy on APPs and other services. |
| Copyright and Ownership. | The children understand that work they create belongs to them.The children can name their work. | The children understand that work they create on technology belongs to the, and can save their work and name it.They should also understand their work created by others down not belong to them- even if they copy it. | The children understand why copying someone else’s work from the internet isn’t fair.The children can give examples of work they cannot use without permission e.g films. | The children can find and use content that can be reused by others.The children can make reference to and acknowledge sources. |
| **Information Technology** | Word Processing and presentations | The children can use touch screen games and use computers, mice and keyboards in role play.The children can dictate short sentences into a digital device.The children can resize and image using their fingers. | The children will learn how to access Microsoft word and practice simple typing skills including how to create capital letters, full stops, start a new line etc. | The children will learn how to use Microsoft PowerPoint and Publisher. They will continue to develop their typing skills and learn how to edit pictures size and shape, use animations and create text boxes. | The children will continue to apply their typing skills to design a Microsoft Sway and website. They will learn about copywrite for pictures, how to create multiple pages, embed images and films.They will also learn how to embed forms and quizzes into their designs.  |
| Data Handling | The children can sort physical objects. The children can take a picture using a commonly used device. | The children will apply parts of their learning into physical Venn diagrams and digital pictograms. | The children will use J2data- branching data to practice manipulating data. | The children will learn how to use spreadsheets. |
| Video /media Creations  | The children can record a short film using a camera. | The children will learn how to use the camera feature of the on an Ipad to take and edit photos.  | The children will learn how to record and edit audio. They children will apply their knowledge of how to take pictures to create stop motion animations. | The children will learn how to manipulate film using green screen technology and develop a film.  |
| Digital Art | The children can use a painting APP to make marks. | The children will learn how to use the ‘Paint’ software. They will learn how to create shapes, text and change colours., They will apply this learning to a range of famous artists.  | The children will use programming to create digital shapes and patterns.The children will compare digital and non-digital art.  | The children will create digital art using  |
| **Computer Science** | The children can follow simple verbal instructions.The children can spot simple patterns.The children can begin to move a Bee Bot by inputting simple commands. | The children will first learn about computer science through unplugged lessons. They will develop an understanding of algorithms by learning about instructions. The children will use BeeBots to practice applying simple code.  | The children will continue to develop their computational thinking skills by writing simple code for Scratch. They will practice debugging their code and practice repetition in code. | The children will continue to practice building code in an abstract context in Scratch but then apply this to MakeCode to programme a physical Micobit. |

Word Processing to be covered during curriculum weeks

**Curriculum Map**

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| Y1 | 1 weekThe Hillfort Digital Code of Conduct | 5 weeks**Technology all around us**Digital Literacy: Health Wellbeing and Lifestyle | 6 weeks**Digital Painting**Link with art- famous artists  | 6 Weeks**Digital Writing- Book creator**Digital Literacy: Managing online informationLink with writing/ reading lessons | 6 weeks**Grouping Data**Digital Literacy: Privacy and securityLink with science/maths- data handling | 6 Weeks**Moving a robot**Digital Literacy: Online relationships | 5 Weeks**Introduction to animation** |
| Y2 | 1 weekThe Hillfort Digital Code of Conduct | 5 weeks**IT all around us**Digital Literacy: Online bullying | 7 weeks**Digital Photography**Digital Literacy: Self Image and Identity | 6 weeks**Making music**Link with music | 6 weeks**Pictograms**Digital Literacy: Copyright and ownershipsLink with science/maths- data handling | 7 weeks**Robot algorithms**Digital Literacy: Online reputations | 5 weeks**Introduction to programming**  |
| Y3 | 1 weekThe Hillfort Digital Code of Conduct | 5 weeks**Connecting computers**Digital Literacy-Healthy habits and making new friends online | 6 weeks**Desktop Publishing**Digital Literacy- Cyberbully and learning how the internet can be used to buy and sell things. | 7 weeks**Animation**Link with art- drawing animations Digital Literacy-Understand that other peoples work belongs to them. | 7 weeks**Programming- music focus**Digital Literacy-Understand that information is stored online and how to use sensible passwords/settingsLink with music | 6 weeks**J2data- branching data**Digital Literacy-Screen time and recognising online bullying | 5 weeks**Programming (lines focus)**Digital Literacy- Savvy searching and online identities  |
| Y4 | 1 weekThe Hillfort Digital Code of Conduct | 5 weeks**The internet**Digital Literacy: Time on technology | 6 weeks**Desktop PowerPoint**Digital Literacy- Where might bullying take place? Opinions, beliefs and facts (telling the difference online) | 6 weeks**Creating media- Audio editing (podcasts)**Digital Literacy-copyright and personal information onlineLink with music- jingle for the podcast | 6 weeks**Digital 3D Art- Minecraft education**Digital Literacy- How personal information can be used by others. Online and offline identities.Link with art- 3D design | 6 weeks**Programming (shapes and patterns focus)**Digital Literacy- Creating a safe screen name and pausing before you post | 6 weeks**Programming**Digital Literacy- Online history and who to turn to. |
| Y5 | 1 weekThe Hillfort Digital Code of Conduct | 5 weeks**The internet**Digital Literacy:Recognising negative behaviour and banter or bullying? | 6 weeks**Sway- Collaborative learning online**Digital Literacy-Who to trust online and searching skills | 7 weeks**Video editing (including green screen)**Digital Literacy-Learning new skills online and Is it fact or fiction?Link with music- creating music for the background/selecting appropriate music and editing it. | 6 weeks**Data logging****Graphs and charts**Digital Literacy-Intrusive apps and what information you should you share online? | 6 weeks**Programming (programme creation e.g A quiz)**Digital Literacy-Feeling left out and impactful information Link with art- famous artists  | 7 weeks**Programming (Micro:bits)**Digital Literacy-Greedy APPs |
| Y6 | 1 WeekThe Hillfort Digital Code of Conduct | 5 weeks**Internet communication**Digital Literacy: Respectful communication and reporting concerns | 7 weeks**Website creation using Wix**Digital Literacy: photo filters and using search engines effectively  | 6 Weeks**Variables in games**Digital Literacy- Technology for good and online reputation | 6 Weeks**Introduction to spreadsheets**Digital Literacy-Secure passwordsLink with art- famous artists  | 9 weeks**Programming (Mico:bits)**Digital Literacy-Gathering evidence and the art of persuasion  | 3 weeks**The AI Debate**Digital Literacy-Spot the scams |

Vocabulary Progression

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| EYFS | KS1 | LKS2 | UKS2 |
| **Algorithm** = A list of instructions to solve a problem. **Internet =** More than one network connected together. The internet is the actual infrastructure not the world wide web.  | **Algorithm** = A list of instructions to solve a problem. **Debug =** To remove errors from a list of instructions. **Internet =** More than one network connected together. The internet is the actual infrastructure not the world wide web. **Programming** = The planning, scheduling or performing of a program.  | **Algorithm:** A list of instructions to solve a problem. **Data:** Information. Examples include words, numbers, dates, images, sound and video. **Input:** Data entered into a computer system. **Output:** Data which leaves a computer system. **Sequence:** Carrying out instructions in order. **Selection:** Only selecting the instructions required based on a condition. **Repetition** = To repeat instructions until a condition is met. Decomposition = Breaking down a problem into chunks. **Debug** = To remove errors from a list of instructions. **Network** = More than one computer system connected in order to share resources. **Internet =** More than one network connected together. The internet is the actual infrastructure not the world wide web. **Variable** = A piece of information in a program that we want to store, but is able to change. **Software** = Software is created using a programming language and is the non-physical part of a computer. Software can be written once and sold multiple times | **Algorithm:** A list of instructions to solve a problem. **Data:** Information. Examples include words, numbers, dates, images, sound and video. **Input:** Data entered into a computer system. **Output:** Data which leaves a computer system. **Sequence:** Carrying out instructions in order. **Selection:** Only selecting the instructions required based on a condition. **Repetition** = To repeat instructions until a condition is met. Decomposition = Breaking down a problem into chunks. **Debug** = To remove errors from a list of instructions. **Network** = More than one computer system connected in order to share resources. **Internet =** More than one network connected together. The internet is the actual infrastructure not the world wide web. **Variable** = A piece of information in a program that we want to store, but is able to change. **Software** = Software is created using a programming language and is the non-physical part of a computer. Software can be written once and sold multiple timesCodingAction, alert, algorithm,code design, command,control, debug, event,flowchart bug, function,input, object, output,repeat, selection,simulation, tabs,sequence, timer, variablesOnline safetyDigital footprint,password, PEGI rating,phishing, screen time,spoof websiteSpreadsheetsAverage, advance mode,copy and paste, columns,cells, charts, dice,formula, formula wizard,random tool, rows, movecell tool, spreadsheet,timer, spin tool |

