

Subject Information:

How we teach computing

in our

Heritage Coast Federation





Heritage Coast Federation Computing Progression

Communicate, Life-Skills, Safe, Digital

Intent

Through our computing curriculum at the Heritage Coast Federation we aim to give our pupils the life-skills that will enable them to embrace and utilise new technology in a socially responsible and safe way in order to flourish. We want children to become autonomous, independent users of computing technologies, gaining confidence and enjoyment from their activities. We want the use of technology to support learning across the entire curriculum and to ensure that our curriculum is accessible to every child. Not only do we want them to be digitally literate and competent end-users of technology but through our computing lessons we want them to develop creativity, resilience and problem-solving and critical thinking skills. We want our pupils to have a breadth of experience to develop their understanding of themselves as individuals within their community but also as members of a wider global community and as responsible digital citizens.

Implementation

At the Heritage Coast Federation, computing is taught in computing lessons but skills are transferred across the curriculum. The computing curriculum is delivered through the Teach Computing Curriculum scheme of work to meet the needs of all our pupils. In computing lessons children are able to develop depth in their knowledge and skills over the duration of each of their computing topics. Where appropriate, meaningful links will be made between the computing curriculum and the wider curriculum. Computing lessons will focus on the curriculum skills of computing systems and networks, creating media, programming and data and information. Children's progress will be assessed using the summative assessment provided by Teach Computing and using teacher's knowledge of their pupils.

Impact

Keeping up to date with updates to the Teach Computing curriculum results in a relevant, engaging, and high-quality computing education. The quality of children's learning is evidenced in folders. Teachers are able to revisit misconceptions and knowledge gaps in computing when teaching other curriculum areas. This supports varied paces of learning and ensures all pupils make good progress. By the end of Year 6 at the Heritage Coast Federation, pupils should feel confident in using a range of technology. They should be able to recognise how to keep themselves safe online, and they should understand the importance of being an exceptionally good digital citizen. Pupils should have a sound knowledge of up to date technologies and how they can be used to enhance their learning and the curriculum.



Heritage Coast Federation Computing Progression

<u>National Curriculum</u>	Key stage 1 Pupils should be taught 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. Key stage 2 Pupils should be taught 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.
EYFS	Show resilience and perseverance in the face of a challenge. Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Know and talk about the different factors that support their overall health and wellbeing: sensible amounts of 'screen time'. Explore, use and refine a variety of artistic effects to express their ideas and feelings. Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.



Heritage Coast Federation Computing Progression

	Explain the reasons for rules, know right from wrong and try to behave accordingly. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Key Vocabulary: choices, internet, website, equipment, buttons, movement, screen, mouse, images, keyboard, paint, technology, share, create, collect, organise	
Key Stage 1	Year 1	Year 2
Key Vocabulary	rules, online, private information, email, instructions, buttons, robots, patterns, program, videos, camera stills, sounds, image bank, word bank, space bar, purpose, online tools, communicate, photographs, video, sound, data, pictogram, digitally	appropriate, inappropriate sites, cyber-bullying, digital footprint, keyword searching, forward, backward, right-angle turn, algorithm, sequence, debug, predict, paint effects, templates, animation, documents, typing, enter/return, caps lock, backspace, information sources, communication, purposes, website content, capturing moments, magnified images, questions, data collection, graphs, charts, save, retrieve
Key Skills	• To know how to switch a range of digital devices (computer/laptops) on and off • Load programs (office, apps) with support/open and close apps • Use a mouse pad to navigate an age-appropriate website/know how to navigate programmes • Use a mouse pad to select/drag/position an object or window to talk about what they are doing with Computers/Digital Media using appropriate vocabulary according to equipment available e.g screen/keyboard/laptop/computer/mouse/headphones	• To develop awareness of keyboard layout and use of a mouse e.g. use the mouse or arrow keys to insert words and sentences • To know backspace/undo/ • shift for capital letters/enter/upload • Changing font/ size/colour and style of text. • typing skills (use two hands when typing) • Logging on/off digital devices use navigation skills to access appropriate parts of a website/ simple program/ app
Computer Science	• To explore a range of control toys and digital devices (BeeBots/microphones/laptops) • To follow instructions to move around to complete a simple task • To give a sequence of instructions to complete a simple task (ScratchJR/Scratch) • To record instructions simply using pictures	• Understand that programs use precise instructions to work • Create simple programs and find bugs in them. • Predict outcomes of their algorithms and programs • To know how to control a range of digital devices • To know that devices and actions on screen may be controlled by sequences of actions and instructions



Heritage Coast Federation Computing Progression

	• To understand that instructions should be given clearly and in the correct order) • To talk about what will happen when instructions are given in a sequence • to navigate a sprite/BeeBot around a course (ScratchJR/Scratch)	• To create a sequence of instructions to complete a simple task (move a BBot/create a simple shape) • To control a floor robot using appropriate buttons (BeeBots) • To make predictions about what will happen when a command is entered • To discuss how to improve/change their sequence of commands. • To know the purpose of a range of digital devices: laptops/cameras/computers • To begin to answer 'What if' questions using a simulation (ScratchJr/Scratch to know the difference between input/output devices)
Information Technology	• To use a digital device to take a picture or record their work (digital camera) • To select or record a sound to add to their work (Scratch) • To be familiar with a keyboard • To select images on a computer/laptop • To begin to type sentences (with support using capital letters, full stops and other punctuation • To use a paint package to a create a picture (paint) • To use predefined layouts or templates for presentation • To know other uses for ICT outside of school • To discuss examples of other ICT uses.	• To develop basic editing skills e.g. shift key for upper case, question marks, spaces after punctuation. • To know how to improve the presentation of a piece of work by changing the font size, colour and style • To use different layouts and templates for different purposes (e.g. story/newspaper /poster) • To understand that folders are used to organise files on a computer • To organise files and folders by creating, renaming, moving, copying and deleting • To combine graphics, text and sound to enhance their text (PPT/Word) • To use a sound recording tool to record voice for a specific purpose (Scratch/PPT) • To create a simple animation to illustrate a story or idea (Scratch/ScratchJr) • To upload an image
Digital Literacy	• To know that we can communicate online (email/text) • To contribute ideas to a class email or respond to a message	• To compare the different ways that messages can be sent e.g email/text /telephone/letter and start to consider their advantages and disadvantages



Heritage Coast Federation Computing Progression

	• To create a story to combine words, pictures, sounds and animations (ppt) • Use simple writing tools to create their own content (office) • Follow age-appropriate links provided by the teacher to research information • To sort objects into groups according to the criteria		• To contribute and respond to an email (with support from teacher) • To consider who can see their contributions on scratch • To know that stories can be shared in different ways (photos/video/animation) • To create/use own pictograms/graphs (j2data pictogram) • To access websites and documents using QR codes • To enter/save and retrieve pictures and text	
ESafety	• Understand they need to follow certain rules to remain safe when visiting places online • Begin to understand that if you create something you own it • Learn that many websites ask for information that is private & discuss how to responsibly handle such requests • Explore how email can be used to communicate with real people within their schools, families & communities		• Stay safe online by choosing websites that are good for them to visit & not inappropriate sites • Explore what cyber-bullying means & what to do when they encounter it • Know that if they put information online it leaves a digital footprint or “trail” & they need to manage it so it’s not hurtful • Understand that keyword searching is an effective way to locate online information & how to select keywords to produce the best search results • Realise that not all websites are equally good sources of information	
Key Stage 2	Year 3	Year 4	Year 5	Year 6
Key Vocabulary	E-safety rules, secure passwords, report abuse button, gaming, blogs, sequence, instructions, sequence debugging, test & improve, logo commands, sequence, programming, multimedia, presentations, alignment, brush size, repeats, reflections, green screening, amend, copy, paste, school	E-safety rules, secure passwords, report abuse button, gaming, blogs, type & edit logo commands, sensors, open-ended problems, bugs in programs, complex programming, creating & modifying, specific purpose, photo modifying, keyboard shortcuts, bullet points, spell check, constructive feedback,	responsible online communication, informed choices, virus threats, blogs, messaging, explore procedures, refine procedures, variable, hardware, software control, change inputs, different outputs, articulate solutions, commands, online sharing, multimedia effects, multimedia modification,	responsible online communication, informed choices, virus threats, blogs, messaging, predicting outputs, plan, program, test & review a program, program writing, control mimics & devices, sensors, measure input, create variables, link



Heritage Coast Federation Computing Progression

	network, devices, computer parts, collaboration, appropriate online communication, search tools, appropriate websites, owner, questioning, database, construct, contribute, recording data, data logger, present data	different networks, information collection, reliability, owners, database creation, database searches, inaccurate data	transitions, hyperlinks, editing tools, refining, online sharing, computing devices, internet parts, collaboration, responsibility, searching strategies, webpages, spreadsheets, complex searches, problem solving, present answers, analyse information, question data, interpret	errors, appropriate online tools, audience, atmosphere, structure, copyright, information collection, HTML code, storing, information movement, connecting devices, different audiences, research strategies, search result rankings, acknowledge sources, generate, process, interpret, store, present information, plausibility, appropriate data tool, investigations
Key Skills	• To upload from digital devices and the Internet to a shared space (Class folders/Chn's Folder) • To know that they can access their work from any school computer by logging on to their Folder/Network Area. • Open/edit and save their work in own space • To insert/cut/ copy/paste • Use ctrl+v and ctrl+c to copy and paste • To use 'save as' to create another version of their work	• To use the online dictionary/thesaurus • To use ctrl+alt+prntscrn to take a picture of the whole screen and paste it into paint to adapt it. • Use windows snipping tool to capture and annotate work • Continue to practice touch typing • Use more than two fingers to type • To develop further basic drafting and editing skills • Edit and top copy literacy work using Word/PPT/Publisher	• To be able to use an online dictionary/thesaurus to search out level specific grammar and vocabulary independently • To use a variety of techniques to save and annotate on screen projects (screenshots/snipping) • To find, save, crop and edit images to suit needs of projects • Continue to practice touch typing and use several fingers when typing • Use spellchecker and grammar checker to ensure consistency throughout work	• To continue to build on Yr5 key skills • To select suitable software to edit and redraft written work • Use a variety of keyboard shortcuts to improve efficiency on computing systems



Heritage Coast Federation Computing Progression

	• To develop further basic drafting skills: • Insert words or sentences. • Centre titles. • Change font, font size, colour. • To practice touch typing	• Use spell checker • delete, insert and replace text using mouse or arrow keys		
Computer Science	• To develop an understanding of how technology works and how computers process instructions and commands. • To create/edit and refine more complex sequences of instructions for a variety of programmable devices e.g. using the repeat command • To use a computer to create basic applications, investigating how different variables can be changed and the effect this has • To understand that computer simulations can represent real life situations. • To use simulations to represent real life situations • To navigate a programming app • To write a simple program/create a simple animation	• To understand that ICT allows for situations to be modelled which it would be impractical to try out in real life • To investigate the effects of changing variables in these simulations • To develop their understanding of how technology works and how computers process instructions and commands • To create a program which can be controlled by external inputs (Scratch) e.g to program their character to navigate their 3D world with an input using control device • To change algorithms/conditional statements and investigate the effect this has e.g use of 'if' and 'then'	• To begin to develop understanding of how technology works; how computers process instructions and commands, including the use of coding languages. • To experience a selection of coding environments (Scratch, Code.org) • To design their own game including sprites, backgrounds, scoring and/or timers. • To use conditional statements to create unique algorithms • Use variables to add variation to algorithms • To program start and ends to games involving wins, losses and draws • To create variable interaction in quizzes and games using a combination of selection, conditional statements and variables (Data blocks in scratch)	(Building on Yr5 work) • To continue develop understanding of how technology works; how computers process instructions and commands, including the use of coding languages. • To experience a variety of coding environments (Scratch, Code.org) • To design their own game including sprites, backgrounds, scoring and/or timers. • To use conditional statements to create unique algorithms • Use variables to add variation to algorithms • To program start and ends to games involving wins, losses and draws • To create variable interaction in quizzes and games using a combination



Heritage Coast Federation Computing Progression

			• To evaluate the effectiveness of their algorithms • To continually debug code to identify and correct errors, exceptions and exploits	of selection, conditional statements and variables (Data blocks in scratch) • To evaluate the effectiveness of their algorithms • To continually debug code to identify and correct errors, exceptions and exploits
Information Technology	• To use still and digital cameras • To know what makes a good photo (hold the camera steady/point at people's faces/to discuss the quality of their image and make decisions (e.g. delete a blurred / bad image) • To download images and video • To select suitable sounds (including recording with a microphone) • To recognise and use key features of layout and design such as text boxes, columns, borders, WordArt • Explore and begin to use more advanced features in a paint package • Save images and use them as part of other multimedia/desktop publishing work	• To evaluate a range of digital media, appropriate to task e.g websites • To plan structure and layout of document/presentation • To improve presentation of a document by laying it out effectively • To select and import images from digital cameras and graphics packages • Select and import sounds (eg own recording) and video/ visual effects • Through peer assessment and self evaluation, evaluate work both during and after completion, and make suitable improvements • To develop an increasing awareness of intended audience.	• To use presentation software and skills to present work or information relating to their learning. • To evaluate a range of digital media, appropriate to task e.g website, prezi, blog, pdfs and recognise key features of layout and design and relate to other curriculum areas (Reading/Writing/Topic) • To select software to support structure and layout of document/presentation • To improve presentation of a document by considering its target audience • To select and import graphics from digital cameras, graphics packages and online sources	(Building on Yr5 work) • Through peer assessment and self evaluation, evaluate projects both during and after completion, and make suitable improvements • To produce and add to a portfolio of written and visual work and projects for sharing with other children inside and out of school • To engage in a range of online activities including; publishing and sharing work for evaluation and evaluating the work of others.



Heritage Coast Federation Computing Progression

	• To locate, record, save and retrieve sounds • to add sounds from different sources. • Sequence still images and use simple editing techniques to create a presentation	• To import a photograph and explore the effects which can be created • To select areas and manipulate to give different effects. • To capture video clips to communicate their ideas • To add text, sound effects and other graphic effects • To select from your best work to save and share (presentation, class folder) • To discuss advantages and disadvantages of communication methods • To start to think about the different styles of language layout and format of online communications sent to different people (eg. when it is appropriate to use “text language”). • To begin to experience forms of online discussion: such as blogs, wikis, • Start new threads and contribute to others relevant to the topic; consider relevance of contributions	• To select and import sounds (eg own recording, free online sources) video/visual effects • Through self-evaluation, evaluate projects both during and after completion, and make suitable improvements • To develop projects with an awareness of intended audience • To capture video clips to communicate ideas and information to specific audiences • To edit, reorganise and enhance digital video for a specific purpose or audience • To consider language, layout and format when communicating with different people online	
Digital Literacy	• To reply to an email independently	• To open/read, and reply to email (independently)	• Use technology to present their work, showing an	(Building on Yr5 work)



Heritage Coast Federation Computing Progression

	• To evaluate a range of printed and electronic texts, appropriate to task e.g newspaper, poster, webpage and recognise key features of layout and design • To organise and present information for a specific audience • To know that ICT enables access to a wider range of information and tools to help find specific information quickly • Produce work using a computer, using more advanced features of programs and tools (font sizes) • To work collaboratively to create documents, including presentations • To understand the basic structure of a database • To add data to a pre-made database • To use the data in a pre-made database to generate graphs and charts • To use technology to create graphs and charts • To answer questions by searching and sorting the database	• To collaborate to create a document, giving thought to its audience and including links/images/embedded media (PPT) • To understand that ICT allows us to make improvements to our work quickly and efficiently. • To continue to use technology to create graphs and present data in different ways. • To design and create a basic database • To use a database to answer questions that have been constructed • To enter data into a spreadsheet • To change data and observe changes in results	increasing degree of skill and using advanced software • To use different filming techniques and camera angles e.g. zoom, panning, wide shot etc. to create different mood/perspective • To plan a video or animation by drawing a storyboard (Storyboard It) • To use a range of sound effects, music and voice-overs to create mood/ atmosphere • To select and edit sounds, text, movie clips and other effects to suit purpose and audience • Begin to recognise that the internet may contain material that is irrelevant, bias and inappropriate. • Begin to understand how issues of copyright apply to their own work • Begin to understand the different type of copyright pertaining to digital medias	• Use technology to present their work, showing a degree of skill and using advanced software • To use a range of sources to check validity and recognise different viewpoints and the impact of incorrect data • Understand how issues of copyright apply to their own work • Understand the different type of copyright pertaining to digital medias • Recognise that the internet may contain material that is irrelevant, bias and inappropriate. • Save and use pictures, text and sound recognising copyright issues
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Heritage Coast Federation Computing Progression

ESafety	• Agree sensible e-safety rules for the classroom • Choose a secure password for age-appropriate websites • Discuss what actions could be taken if they are uncomfortable or upset online e.g. Report Abuse button • Talk about what games they enjoying playing and what good choices are when playing games e.g. content, screen time • Consider the use of a class blog to share information and talk about who can see it, and how to communicate safely and respectfully • Comment and provide positive feedback on the work of classmates in school or online, or the work of others online	• Agree sensible e-safety rules for the classroom • Discuss their own personal use of the Internet and choices they make • Discuss how to protect devices from virus threats • Discuss the importance of keeping an adult informed about what you're doing online, and how to report concerns • Explore using the safe and responsible use of online communication tools e.g. blogs, messaging
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