Our Computing Curriculum

From tiny seeds beautiful minds blossom and grow…

Developed with reference to

Computing Curriculum Intent

At EHPA, we aim to deliver a high-quality computing curriculum that equips pupils to use computational thinking and creativity to understand and change the world. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content.

We aim for all pupils to become digitally literate and we give them the means to be able to use and express themselves and develop their ideas through information and communication technology, with a focus on e-safety, at a level suitable for the future workplace and as active participants in a digital world.

Computing Curriculum Implementation

- Children receive a creative curriculum that allows for the use of computing in many other subjects.
- Cross-curricular activities offer many opportunities for children to learn and apply skills taught in computing and to enhance creativity.
- Computing is taught within weekly lessons as we believe regular practice is key to developing digital literacy.
- The class teacher teaches Computing to their class/year group.
- Currently, teachers use the NCCE 'Teach Computing' scheme of work for years 1-6 to inform the planning of their computing lessons, although this is adapted to the needs of the children and the current teaching topics. Computing skills are integrated into the EYFS curriculum.
- Online safety is taught in discrete lessons at the start of each unit of work, as well as being linked to other computing and PSHRE lessons. Project Evolve and 'Be Internet Legends' resources are used.
- The school has a computing suite, Chromebooks and children also have access to other digital devices, ensuring that children can use computers for a range of purposes and that it is used across the wider curriculum, as well as in discrete computing lessons.

Computing Curriculum Impact

- Children will achieve age related expectations at the end of the school year.
- Teachers will assess children at the end of units of work and feed this information into the next unit of work, ensuring all children are making progress.
- Children will develop and build upon the skills needed to carry out computing throughout the school.
- Children will retain knowledge that is pertinent to computing.
- Children will understand that computing skills have many applications in the workplace.

Talk like a Computer Scientist
Sentence Stems

- I liked / I disliked...
- I think that...
- I made this model because...

- The purpose of my product is ...
- In my opinion, I feel that I can improve this by...
- I believe this programme is (good / bad) because ....
- I found the process / skill of ... the most challenging because...

- Based on my design criteria, I believe ...
- I believe this was ambitious because...
- You could improve this product by...maybe you could try...
- I used the process / skill of .... because ...
- I can transfer the skill of... to ...
- The problems I faced were.... I overcame these by...
- I believe the strengths / weaknesses are evident in the...

- Based on the design brief I have been presented with....
- In my opinion, the success of this product was... However, ...
- Possible improvements may include...
- This product has met / has not met the brief because ...
- Alternatively, I believe the product would be more suited to...
- I have come to the conclusion that...
- The evidence / facts lead to...
- The computer aided design helped me to...
- To create my product, it was essential to understand...
- When I began to critique my product, I found that...
- The functional properties, which I am proud of, are...

EYFS

Computing is taught within all areas of our EYFS curriculum

3-4 year olds	Physical Development	Match their developing physical skills to tasks and activities in the setting. Manipulates a range of tools and equipment in one hand, tools include paintbrushes, scissors, hairbrushes, toothbrush, scarves or ribbons
3-4 year olds	Understanding The World	Explore how things work Knows how to operate simple equipment, e.g. turns on CD player, uses a remote control, can navigate touch-capable technology with support Shows an interest in technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets
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'. Shows confidence in choosing resources and perseverance in carrying out a chosen activity

Reception	Physical Development		Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Uses simple tools to effect changes to materials Handles tools, objects, construction and malleable materials safely and with increasing control and intention
Reception	Expressive Arts and Design		Explore, use and refine a variety of artistic effects to express their ideas and feelings. Completes a simple program on electronic devices Uses ICT hardware to interact with age appropriate computer software Can create content such as a video recording, stories, and/or draw a picture on screen Develops digital literacy skills by being able to access, understand and interact with a range of technologies Can use the internet with adult supervision to find and retrieve information of interest to them
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.
ELG	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.

Year 1

Computing:

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	Online safety (Project Evolve)
NCCE Curriculum focus area	Computing systems and networks	Programming	Creating media	Data and information	Programming	Creating media	• Self image and identity • Online relationships • Online reputation • Online bullying • Managing online information • Health, well-being and lifestyle • Privacy and security • Copyright and ownership
NCCE Computing Unit	Technology around us Recognising technology in school and using it responsibly.	Moving a robot Writing short algorithms and programs for floor robots, and predicting program outcomes.	Digital writing Using a computer to create and format text, before comparing to writing non-digitally	Grouping data Exploring object labels, then using them to sort and group objects by properties	Programming animations Designing and programming the movement of a character on screen to tell stories.	Digital painting Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally.	
Software / hardware required	www.paintz.app https://www.j2e.com/jit5 https://www.abcya.com/games/category/typing BBC Dancemat	Beebots https://beebot.terrapinlogo.com/	Google Docs https://www.j2e.com/jit5	Google Docs/Google Slides https://www.j2e.com/jit5 - pictograms etc	Scratch Jr (on Chromebooks) - change to algorithms?	www.paintz.app https://www.j2e.com/jit5	

Year 2

Computing:

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	Online safety (Project Evolve)
NCCE Curriculum focus area	Computing systems and networks	Creating media	Programming	Data and information	Programming	Creating media	• Self image and identity • Online relationships • Online reputation • Online bullying • Managing online information • Health, well-being and lifestyle • Privacy and security • Copyright and ownership
NCCE Computing Unit	IT around us Identifying IT and how its responsible use improves our world in school and beyond.	Digital photography Capturing and changing digital photographs for different purposes.	Robot algorithms Creating and debugging programs, and using logical reasoning to make predictions.	Pictograms Collecting data in tally charts and using attributes to organise and present data on a computer.	Programming quizzes Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.	Making music Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.	
Software / hardware required	Unplugged/Google Slide sorting activity ABCya - Typing Games	Digital camera device; https://pixlr.com/x/	Beebots	J2E https://www.j2e.com/jit5#pictogram ***free version available but children can't save work	Scratch Jr (on Chromebooks)	Chrome Music Lab https://musiclab.chromeexperiments.com/Song-Maker/	

Year 3

Computing:

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	Online safety (Project Evolve)
NCCE Curriculum focus area	Computing systems and networks	Programming	Creating media	Data and information	Programming	Creating media	• Self image and identity • Online relationships • Online reputation • Online bullying • Managing online information • Health, well-being and lifestyle • Privacy and security • Copyright and ownership
NCCE Computing Unit	Connecting computers Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.	Sequencing sounds Creating sequences in a block-based programming language to make music.	Stop-frame animation Capturing and editing digital still images to produce a stop-frame animation that tells a story.	Branching databases Building and using branching databases to group objects using yes/no questions.	Events and actions Writing algorithms and programs that use a range of events to trigger sequences of actions.	Desktop publishing Creating documents by modifying text, images, and page layouts for a specified purpose.	
Software / hardware required	Unplugged (www.paintz.app lesson 3) https://www.j2e.com/	Scratch	Tablets, iMotion app, pivotanimator.net ***only some parts of this unit may be deliverable due to hardware/software	J2E https://www.j2e.com/jit5#branch ***free version available but children can't save work	Scratch	Adobe Spark (free for education, but requires signing up) Can adapt to use with Google Slides/Docs https://www.j2e.com/ (mix)	

Year 4

Computing:

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	Online safety (Project Evolve)
NCCE Curriculum focus area	Computing systems and networks	Programming	Creating media	Data and information	Programming	Creating media	• Self image and identity • Online relationships • Online reputation • Online bullying • Managing online information • Health, well-being and lifestyle • Privacy and security • Copyright and ownership
NCCE Computing Unit	The Internet Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.	Repetition in shapes Using a text-based programming language to explore count-controlled loops when drawing shapes.	Audio production Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	Data logging Recognising how and why data is collected over time, before using data loggers to carry out an investigation.	Repetition in games Using a block-based programming language to explore count-controlled and infinite loops when creating a game.	Photo editing Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled.	
Software / hardware required	Online services	Turtle Academy https://turtleacademy.com/playground or FMSLogo	Audacity Alternative: bandlab.com	Data loggers, or apps on tablets; Google Science Journal app download	Scratch	www.paint.net	

Year 5

Computing:

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	Online safety (Project Evolve)
NCCE Curriculum focus area	Computing systems and networks	Programming	Creating media	Data and information	Programming	Creating media	
NCCE Computing Unit	Sharing information Identifying and exploring how information is shared between digital systems.	Selection in physical computing Exploring conditions and selection using a programmable microcontroller.	Introduction in vector graphics Creating images in a drawing program by using layers and groups of objects.	Flat-file databases Using a database to order data and create charts to answer questions.	Selection in quizzes Exploring selection in programming to design and code an interactive quiz.	Video editing Planning, capturing, and editing video to produce a short film.	• Self image and identity • Online relationships • Online reputation • Online bullying • Managing online information • Health, well-being and lifestyle • Privacy and security • Copyright and ownership
Software / hardware required	Google Slides	Crumbles, Crumble accessories and Crumble software (based on Scratch environment)	Google Drawings	J2E http://www.j2e.com/help/videos/datags4 ***free version available but children can't save work	Scratch	Recording device, Microsoft Movie Maker (could use other movie editing software) ***only some parts of this unit may be deliverable due to hardware/software	

Year 6

Computing:

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	Online safety (Project Evolve)
NCCE Curriculum focus area	Computing systems and networks	Programming	Creating media	Data and information	Programming	Creating media	• Self image and identity • Online relationships • Online reputation • Online bullying • Managing online information • Health, well-being and lifestyle • Privacy and security • Copyright and ownership
NCCE Computing Unit	Communication and collaboration Recognising how the WWW can be used to communicate and be searched to find information.	Variables in games Exploring variables when designing and coding a game.	3D Modelling Planning, developing, and evaluating 3D computer models of physical objects.	Spreadsheets Answering questions by using spreadsheets to organise and calculate data.	Sensing movement Designing and coding a project that captures inputs from a physical device.	Web page creation Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.	
Software / hardware required	Online websites	Scratch	TinkerCAD	Google Sheets	Micro-bit (although can use an emulator https://makecode.microbit.org/)	Google Sites	