



Ashton Hayes Primary School – Computing Curriculum Overview

Vision for Computing:

At Ashton Hayes Primary School, we believe that computing is an essential part of modern life and equips pupils with the skills they need to thrive in an increasingly digital world. Through our computing curriculum, we aim to inspire curiosity, creativity and confidence in using technology safely and effectively.

We are committed to providing a curriculum that enables pupils to develop key digital skills for the future, including problem-solving, logical thinking and resilience. Pupils learn how to use technology not only as consumers, but as creators, developing an understanding of how digital systems work and how they can be used to express ideas and solve real-world problems.

Our curriculum supports pupils in becoming independent learners who can research, evaluate and use information effectively. We place a strong emphasis on digital literacy, ensuring pupils can navigate the online world safely, responsibly and critically. Pupils are taught how to question information, understand reliability and develop the skills needed to make informed decisions in a digital environment.

We aim to nurture confident, responsible digital citizens who understand the importance of online safety, respect and ethical use of technology. Through a progressive and engaging curriculum, pupils build the knowledge and skills needed to adapt to new technologies and challenges.

Ultimately, we want computing to empower pupils with the confidence and capability to succeed in a rapidly changing technological world, preparing them for future education, employment and life beyond school.

We aim for all pupils to:

We aim for all pupils to develop confidence in using a range of digital technologies safely, responsibly and effectively. Pupils will learn to navigate digital devices and platforms with increasing independence, understanding how to use technology purposefully to support their learning and everyday life.

We aim for pupils to become computational thinkers who can solve problems logically and creatively. Through coding and programming, pupils will learn to break down problems, recognise patterns and design simple algorithms, developing resilience and perseverance when faced with challenges.

We aim for all pupils to become independent learners who can research, evaluate and use information effectively. Pupils will be taught how to search for information safely, assess its reliability and present their findings in a clear and purposeful way, equipping them with essential skills for lifelong learning.

We aim to develop pupils' digital literacy so they can communicate and express ideas using a variety of digital tools. Pupils will learn to create content such as presentations, documents, images and simple media, building confidence in sharing their ideas in different formats.

We aim for pupils to understand how to stay safe online and to become responsible digital citizens. They will learn about online safety, privacy, respectful communication and the impact of their digital footprint, ensuring they can engage positively and responsibly in the online world.



Implementation

Our computing curriculum is designed to be progressive, engaging and accessible to all learners, ensuring that knowledge and skills build over time. Lessons are carefully sequenced so that pupils revisit and develop key concepts, allowing them to deepen their understanding and apply their learning in a range of contexts.

Pupils are taught computing through a structured curriculum that covers the key areas of computer science, information technology and digital literacy. This ensures that pupils not only learn how to use technology, but also understand how it works and how to create their own digital content.

Throughout the school, pupils develop their understanding of programming through age-appropriate activities. They begin by giving and following simple instructions and progress to designing, writing and debugging their own programs using a range of software and platforms. This supports the development of logical thinking, problem-solving and resilience.

Digital literacy is embedded across the curriculum, enabling pupils to use technology purposefully to support their learning. Pupils are taught how to research effectively, evaluate information and present their ideas using a variety of digital tools. Opportunities are provided for pupils to work independently and collaboratively, developing confidence in using technology in different contexts.

Online safety is a key priority within our computing curriculum. Pupils are regularly taught how to stay safe online, including understanding privacy, respectful communication and the potential risks of the digital world. These messages are reinforced across the curriculum and through wider school initiatives.

Teachers use a range of strategies to support all learners, including modelling, scaffolding and providing opportunities for repetition and retrieval practice. Lessons are adapted to meet the needs of all pupils, ensuring that everyone can access the curriculum and make progress.

By providing a rich and varied computing curriculum, we ensure that pupils gain the skills, knowledge and confidence needed to use technology effectively, both in school and beyond.

Impact

By the time pupils leave (Name of the school), they will have developed a secure understanding of computing and will be confident in using a range of digital technologies.

Pupils will be able to think logically and solve problems through programming, demonstrating resilience and independence. They will understand key concepts of computational thinking and be able to apply these across different areas of learning.

They will be digitally literate, able to research, evaluate and present information effectively, choosing appropriate tools to communicate their ideas.

Pupils will also understand how to stay safe online and will demonstrate responsible and respectful use of technology. They will be aware of risks and understand how to manage their digital footprint.

Overall, pupils will leave (Name of the school) as confident and capable users of technology, well-prepared for the next stage of their education and life in a digital world.

EYFS (Kestrel class)

Core knowledge	To recognise that technology is used at home, school and in the wider world. To understand that digital devices can be used for different purposes, including learning, communication and entertainment. To know how to use simple technology safely and with adult guidance. To recognise and name a range of everyday technology, including computers, tablets, interactive whiteboards and programmable toys. To understand that instructions help technology perform tasks. To begin to understand that personal information should be kept private and that they should tell a trusted adult if something online makes them worried or upset.
Skills	Explore a range of digital devices independently and through play. Use a mouse, touchscreen or keyboard to interact with simple programs. Create simple digital pictures, marks or patterns using age-appropriate software. Give and follow simple instructions when using programmable toys such as Bee-Bots. Take photographs using a tablet or camera. Talk about the technology they use and explain what it does.
Key vocabulary	Technology Computer Tablet Keyboard Mouse Screen Camera Bee-Bot Instructions Program Photograph Internet Safe Click Robot
Adaptations	Provide regular opportunities to explore technology through continuous provision. Model safe and appropriate use of all digital devices. Use visual prompts, symbols and demonstrations to support understanding. Offer adult-guided exploration before independent practice.

	Provide large, accessible equipment and adapted input devices where appropriate. Support language development through questioning and discussion about technology. Encourage collaborative exploration and turn-taking when using digital devices.
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Year 1 (Sparrowhawk class)

Topic/Term	Autumn: Technology around us	Spring: Creating media – Digital painting	Summer: Programming A – Moving a robot
Core knowledge	To understand what technology is and how it helps us in different ways To know the main parts of a desktop or laptop. To use a mouse to open a program and create a simple picture. To begin to use a computer keyboard for a purpose. To demonstrate the ability to write their names. To understand the rules needed for using computer technology safely.	To describe what different freehand tools do. To use the shape tools and the line tools. To make careful choices when painting a digital picture. To explain why I chose the tools I used. To use appropriate colours, brush sizes, and brush tools to independently create their own image in the style of an artist. To compare painting a picture on a computer and on paper.	To explain what a given command will do to a robot. To work collaboratively to give and follow instructions. To combine 'forwards' and 'backwards' commands to make a sequence. To combine four directions commands to make a sentence. To plan a simple program and be able to debug it if necessary. To find more than one solution to a problem when planning routes around a mat.
Key vocabulary	Mouse Keyboard Internet safety Technology Program	Paint (Program) Shapes Tools Digital painting	Command Predict Bee-bot Forwards and backwards Sequence Debug Programming
Possible Adaptations	Use labelled visuals for parts of a computer Adult support for mouse control and navigation Step-by-step modelling of tasks Paired work for support and confidence	Pre-selected tools to reduce cognitive load Visual prompts for colours and shapes Modelled examples before independent work Support with fine motor skills (mouse control)	Physical movement (children acting as robots) Simplified instructions (one-step commands) Use of visual command cards Adult-guided sequencing activities Partner work for problem-solving

	Reinforce rules through stories and visuals	Opportunities for verbal or non-verbal explanations	
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Year 2/3 Cycle A (Owl class)

Topic/Term	Autumn: Computing systems and networks – IT around us	Spring: Programming A – robot algorithms	Summer: Creating media - Digital photography
Core knowledge	To recognise the uses and features of information technology. To identify the uses of IT in the school. To identify information technology beyond school. To recognise common types of technology and demonstrate how IT devices work together. To explain how to use IT safely. To recognise that choices are made when using IT.	To describe a series of instructions as a sequence. To explain what happens when we change the order of instructions. To use logical reasoning to predict the outcome of a program. To explain that programming projects can have code and artwork. To design an algorithm. To create and debug a program that I have written.	To use a digital device to take a photograph. To make choices when taking a photograph. To explain why a photo looks better in portrait or landscape format. To describe what makes a good photograph. To decide how photographs can be improved. To use tools to change an image. To recognise that photos can be changed. To identify which photos are real and which have been changed.
Key vocabulary	Information technology Device Connection Internet safety	Information technology Device Connection Internet safety	Camera Portrait Landscape Photo editing Gallery
Possible Adaptations	Use real-life examples of technology Visual prompts for device identification Structured discussions with sentence starters Reinforcement of online safety through scenarios Small group support for key concepts	Use of visual algorithms and flowcharts Breaking tasks into smaller steps Sentence stems for explaining thinking Guided debugging with adult support Pair programming for collaboration	Model examples of good vs poor photographs Use of checklists (focus, angle, light) Guided photo-taking tasks Simplified editing tools Opportunities to explain choices verbally



Year 2/3 Cycle B (Owls)

Topic/Term	Autumn:	Spring:	Summer: <i>does it matter?</i>
Core knowledge	To explain how digital devices can be connected together. To recognise the difference between wired and wireless connections. To identify input and output devices. To understand how information is shared between connected devices. To recognise the role of a server in a network. To explain how to use connected devices safely and responsibly.	To explain that a sequence of commands can create an interactive quiz. To understand that a program can include different outcomes depending on a user's answer. To create questions and responses for a simple quiz. To use selection to make a program interactive. To test and debug a program to improve its accuracy.	To identify how music can be created using a computer. To recognise that digital music is created by combining different sounds. To use software to create and edit a piece of digital music. To experiment with tempo, rhythm and volume. To organise sounds to create a purposeful composition. To evaluate how changes improve a piece of music.
Key vocabulary	Network Connection Wireless Wired Input Output Server Device	Quiz Program Sequence Selection Debug Predict Algorithm Output	Digital music Rhythm Tempo Volume Beat Loop Compose Edit
Adaptations	Use real devices to demonstrate connections. Labelled diagrams of networks and devices. Matching activities for input and output devices. Adult modelling of key vocabulary. Paired discussions to explain understanding.	Provide planning templates for quiz questions. Use partially completed code blocks. Model debugging strategies step-by-step. Pair programming opportunities. Sentence stems to explain predictions and improvements.	Demonstrate each music tool before independent work. Provide pre-selected sounds and loops. Use visual icons for editing tools. Model effective compositions. Allow pupils to explain choices verbally before editing independently.

Year 4/5 Cycle A (Peregrine class)

Topic/Term	Autumn: Computing systems and network – The internet	Spring: Creating media – photo editing	Summer: Programming A – Repetition in shapes
Core knowledge	To describe how networks physically connect to other networks. To recognise how networked devices make up the internet. To outline how websites can be shared via the World Wide Web (WWW). To describe how content can be added and accessed on the World Wide Web. To recognise how the content of the WWW is created by people. To recognise the consequences of unreliable content. To understand how to stay safe online.	To explain that the composition of digital images can be changed. To explain that colours can be changed in digital images. To understand how cloning can be used in photo editing. To explain that images can be combined. To combine images for a purpose. To evaluate how changes can improve an image.	To identify that accuracy in programming is important. To create a program in a text-based language. To explain what 'repeat' means when coding. To modify a count-controlled loop to produce a given outcome. To decompose a task into small steps. To create a program that uses count-controlled loops to produce a given outcome.
Key vocabulary	WWW (World Wide Web) Network Router Internet Safety Media Web searcher	Composition Digital image Cloning Photo editing Photo combine	Logo program Commands Text-based language Sequence Algorithm Loop Debugging
Adaptations	Use diagrams to explain networks and the internet Pre-selected safe websites for research Structured comparison tasks (reliable/unreliable) Vocabulary mats for technical language Teacher modelling of safe searching	Step-by-step guides for editing tools Use of templates for combining images Modelled examples of before/after images Scaffolded evaluation prompts Support with technical vocabulary	Worked examples of loops and repetition Visual representations of code Chunking programs into small steps Debugging checklists Pair or supported coding tasks

Year 4/5 Cycle B (Peregrine)

Topic/Term	Autumn: Data information – Data logging	Spring: Creating media – Audio production	Summer: Programming B – repetition in games
Core knowledge	To explain that data can be collected automatically using sensors. To identify different types of data that can be recorded. To recognise that data can be displayed in different ways. To explain why data is collected over time. To interpret data collected from a sensor. To use data to answer questions and identify patterns. To recognise the dangers of being online and learn how to keep safe.	To identify the features of a podcast or audio recording. To explain how audio can be recorded digitally. To use recording software to capture clear audio. To edit recordings by trimming, rearranging and combining clips. To add music or sound effects appropriately. To evaluate an audio recording and suggest improvements.	To explain how repetition can make games more efficient. To recognise when a loop should be used in a program. To create a game using repetition and events. To test and debug a game to improve its performance. To modify code to change how a game behaves. To evaluate a finished game against its design criteria.
Key vocabulary	Data logger Sensor Data Recording Pattern Temperature Light sensor Results	Audio Podcast Microphone Record Edit Trim Sound effect Narration	Game Loop Repetition Event Sprite Debug Algorithm Variable
Adaptations	Demonstrate data logging equipment before use. Provide partially completed recording tables. Use visual examples of graphs and patterns. Support interpretation through guided questioning.	Model recording and editing techniques step-by-step. Provide recording scripts or prompts. Use headphones to support listening. Offer sentence stems for evaluation.	Provide worked examples of game code. Break coding into manageable sections. Use debugging checklists. Pair programming to encourage discussion.

	Partner work when collecting data.	Allow repeated recordings before editing.	Provide scaffolded planning templates for game design.
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Year 5/6 Cycle A (Buzzard class)

Topic/Term	Autumn: Systems and searching	Spring: Creating Media – Introduction to Vector graphics	Summer: Data and information – Flat- file databases
Core knowledge	To explain that computers can be connected together to form systems. To recognise the role of computer systems in our lives. To identify how to use a search engine. To describe how search engines select results. To explain how search results are ranked. To recognise why the order of results is important, and to whom. To deepen understanding of how to stay safe when using online systems and devices.	To identify that drawing tools can be used to produce different outcomes. To create a vector drawing by combining shapes. To use tools to achieve a desired effect. To recognise that vector drawings consist of layers. To group objects to make them easier to work with. To apply what I have learnt about vector drawings.	To use a paper based form to record information. To compare paper and computer – based databases. To outline how you can answer questions by grouping and then sorting data. To explain that tools can be used to select specific data. To explain that computer programs can be used to compare data visually. To use real-world database to answer questions.
Key vocabulary	Computer systems Search engine Web crawler Index World Wide Web (WWW)	Vector graphics Google drawings Duplicate Layering	Database Fields J2E tool Criteria Parameters
Adaptations	Pre-selected search terms and websites Modelling how to refine searches Use of comparison tables for results Vocabulary support for key terms Guided discussion on reliability	Step-by-step modelling of tools Templates for initial designs Visual guides for layering and grouping Scaffolded design tasks Opportunities to practise before final piece	Pre-filled examples of databases Guided sorting and filtering tasks Use of visual data sets Step-by-step instructions for using tools Support with interpreting results

Year 5/6 Cycle B

Topic/Term	Autumn: Creating media – Video production	Spring: Programming A – selection in physical computing	Summer: Computing systems and networks – communication and collaboration
Core knowledge	To explain the features of an effective video. To plan a video using a storyboard. To understand how camera angles, framing and transitions affect a video. To record high-quality video and audio. To edit clips by trimming, rearranging and adding titles, music and transitions. To evaluate a completed video against its intended purpose and audience.	To explain how selection allows a program to make decisions. To understand how physical computing combines hardware and software. To identify inputs and outputs on a programmable device. To create a program using selection to control physical devices. To test and debug programs involving sensors and outputs. To evaluate how physical computing can solve real-world problems.	To explain how people communicate and collaborate online. To recognise the benefits and risks of online collaboration. To understand how shared documents allow multiple users to work together. To explain the importance of permissions, privacy and digital responsibility. To use collaborative digital tools effectively. To evaluate different methods of online communication and collaboration.
Key vocabulary	Storyboard Timeline Transition	Physical computing Selection Input	Collaboration Communication Shared document



NO OUTSIDERS

EVERYONE IS WELCOME.

'Aspire to be Amazing'

	Clip Sequence Edit Frame Audience	Output Sensor Microcontroller Condition Debug	Permission Cloud Digital footprint Privacy Collaboration tools
Adaptations	Provide storyboard templates before filming. Model filming and editing techniques. Assign clear group roles during production. Use checklists for successful videos. Offer sentence stems for evaluating finished work.	Use worked examples before independent programming. Provide labelled diagrams of hardware components. Break programming into smaller steps. Use debugging flowcharts to support problem solving. Pair pupils during programming challenges.	Model collaborative working using shared documents. Use guided discussions about online safety and permissions. Provide vocabulary mats for technical language. Offer scaffolded tasks when sharing and editing files. Use real-life scenarios to reinforce responsible online communication.



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