**HARCOURT PRIMARY SCHOOL – COMPUTING CURRICULUM - YEAR ONE**

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| **UNIT OF STUDY** | **KEY LEARNING/EXPECTATIONS** |
| 1.1 We are treasure hunters - Using programmable toys | * Understand that a programmable toy can be controlled by inputting a sequence of instructions. * Develop and record sequences of instructions as an algorithm. * Program the toy to follow their algorithm. * Debug their programs. * Predict how their programs will work. |
| 1.2 We are TV chefs - Filming the steps of a recipe | * Break down a process into simple, clear steps, as in an algorithm. * Use different features of a video camera. * Use a video camera to capture moving images. * Develop collaboration skills. * Discuss their work and think about how it could be improved. |
| 1.3 We are painters - Illustrating an eBook | * Use the web safely to find ideas for an illustration. * Select and use appropriate painting tools to create and change images on the computer. * Understand how this use of ICT differs from using paint and paper. * Create an illustration for a particular purpose. * Know how to save, retrieve and change their work. * Reflect on their work and act on feedback received. |
| 1.4 We are collectors - Finding images using the web | * Find and use pictures on the web. * Know what to do if they encounter pictures that cause concern. * Group images on the basis of a binary (yes/no) question. * Organise images into more than two groups according to clear rules. * Sort (order) images according to some criteria. * Ask and answer binary (yes/no) questions about their images. |
| 1.5 We are storytellers - Producing a talking book | * Use sound recording equipment to record sounds. * Develop skills in saving and storing sounds on the computer. * Develop collaboration skills as they work together in a group. * Understand how a talking book differs from a paper-based book. * Talk about and reflect on their use of ICT. * Share recordings with an audience. |
| 1.6 We are celebrating - Creating a card digitally | * • Develop basic keyboard skills, through typing and formatting text. * Develop basic mouse skills. * Use the web to find and select images. * Develop skills in storing and retrieving files. * Develop skills in combining text and images. * Discuss their work and think about whether it could be improved. |

**HARCOURT PRIMARY SCHOOL – COMPUTING CURRICULUM - YEAR TWO**

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| **UNIT OF STUDY** | **KEY LEARNING** |
| 2.1 We are astronauts - Programming on screen | * Have a clear understanding of algorithms as sequences of instructions. * Convert simple algorithms to programs. * Predict what a simple program will do. * Spot and fix (debug) errors in their programs. |
| 2.2 We are games testers - Exploring how computer games work | * Describe carefully what happens in computer games. * Use logical reasoning to make predictions of what a program will do. * Test these predictions. * Think critically about computer games and their use. * Be aware of how to use games safely and in balance with other activities |
| 2.3 We are photographers - Taking better photos | * Consider the technical and artistic merits of photographs. * Use a digital camera or camera app. * Take digital photographs. * Review and reject or rate the images they take. * Edit and enhance their photographs. * Select their best images to include in a shared portfolio |
| 2.4 We are researchers - Researching a topic | * Develop collaboration skills through working as part of a group. * Develop research skills through searching for information on the internet. * Improve note-taking skills through the use of mind mapping. * Develop presentation skills through creating and delivering a short multimedia presentation. |
| 2.5 We are detectives - Collecting clues | * • Understand that email can be used to communicate. * Develop skills in opening, composing and sending emails. * Gain skills in opening and listening to audio files on the computer. * Use appropriate language in emails. * Develop skills in editing and formatting text in emails. * Be aware of online safety issues when using email. |
| 2.6 We are zoologists - Collecting data about bugs | * Sort and classify a group of items by answering questions. * Collect data using tick charts or tally charts. * Use simple charting software to produce pictograms and other basic charts. * Take, edit and enhance photographs. * Record information on a digital map. |

**HARCOURT PRIMARY SCHOOL – COMPUTING CURRICULUM - YEAR THREE**

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| **UNIT OF STUDY** | **KEY LEARNING** |
| 3.1 We are programmers - Programming an animation | * Create an algorithm for an animated scene in the form of a storyboard. * Write a program in Scratch to create the animation. * Correct mistakes in their animation programs. |
| 3.2 We are bug fixers - Finding and correcting bugs in programs | * Develop a number of strategies for finding errors in programs. * Build up resilience and strategies for problem solving. * Increase their knowledge and understanding of Scratch. * Recognise a number of common types of bug in software. |
| 3.3 We are presenters - Videoing performance | * Gain skills in shooting live video, such as framing shots, holding the camera steady, and reviewing. * Edit video, including adding narration and editing clips by setting in/out points. * Understand the qualities of effective video, such as the importance of narrative, consistency, perspective and scene length. |
| 3.4 We are vloggers - Making and sharing a short screencast presentation | * Use a search engine to learn about a new topic. * Plan, design and deliver an interesting and engaging presentation. * Search for and evaluate online images. * Create their own original images. * Create a video slidecast of a narrated presentation. * Develop understanding of how the internet, the web and search engines work. |
| 3.5 We are communicators - Communicating safely on the internet | * Develop a basic understanding of how email works. * Gain skills in using email. * Be aware of broader issues surrounding email, including ‘netiquette’ and online safety. * Work collaboratively with a remote partner. * Experience video conferencing. |
| 3.6 We are opinion pollsters - Collecting and analysing data | * Understand some elements of survey design. * Understand some ethical and legal aspects of online data collection. * Use the web to facilitate data collection. * Gain skills in using charts to analyse data. * Gain skills in interpreting results. |

**HARCOURT PRIMARY SCHOOL – COMPUTING CURRICULUM - YEAR FOUR**

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| **UNIT OF STUDY** | **KEY LEARNING** |
| 4.1 We are software developers - Developing a simple educational game | * Develop an educational computer game using selection and repetition. * Understand and use variables. * Start to debug computer programs. * Recognise the importance of user interface design, including consideration of input and output. |
| 4.2 We are toy designers - Prototyping an interactive toy | * Design and make an on-screen prototype of a computer-controlled toy. * Understand different forms of input and output (such as sensors, switches, motors, lights and speakers). * Design, write and debug the control and monitoring program for their toy. |
| 4.3 We are musicians - Producing digital music | * Use one or more programs to edit music. * Create and develop a musical composition, refining their ideas through reflection and discussion. * Develop collaboration skills. * Develop an awareness of how their composition can enhance work in other media. |
| 4.4 We are HTML editors - Editing and writing HTML | * Understand some technical aspects of how the internet makes the web possible. * Use HTML tags for elementary mark up. * Use hyperlinks to connect ideas and sources. * Code up a simple web page with useful content. * Understand some of the risks in using the web. |
| 4.5 We are co-authors - Producing a wiki | * Understand the conventions for collaborative online work, particularly in wikis. * Be aware of their responsibilities when editing other people’s work. * Become familiar with Wikipedia, including potential problems associated with its use. * Practise research skills. * Write for a target audience using a wiki tool. * Develop collaboration skills. * Develop proofreading skills. |
| 4.6 We are meteorologists - Presenting the weather | * Understand different measurement techniques for weather, both analogue and digital. * Use computer-based data logging to automate the recording of some weather data. * Use spreadsheets to create charts. * Analyse data, explore inconsistencies in data and make predictions. * Practise using presentation software and, optionally, video. |

**HARCOURT PRIMARY SCHOOL – COMPUTING CURRICULUM - YEAR FIVE**

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| **UNIT OF STUDY** | **KEY LEARNING** |
| 5.1 We are game developers - Developing an interactive game | * Create original artwork and sound for a game. * Design and create a computer program for a computer game, which uses sequence, selection, repetition and variables. * Detect and correct errors in their computer game. * Use iterative development techniques (making and testing a series of small changes) to improve their game. |
| 5.2 We are cryptographers - Cracking codes | * Be familiar with semaphore and Morse code. * Understand the need for private information to be encrypted. * Encrypt and decrypt messages in simple ciphers. * Appreciate the need to use complex passwords and to keep them secure. * Have some understanding of how encryption works on the web |
| 5.3 We are artists - Fusing geometry and art | * Develop an appreciation of the links between geometry and art. * Become familiar with the tools and techniques of a vector graphics package. * Develop an understanding of turtle graphics. * Experiment with the tools available, refining and developing their work as they apply their own criteria to evaluate it and receive feedback from their peers. * Develop some awareness of computergenerated art, in particular fractal-based landscapes. |
| 5.4 We are web developers - Creating a website about cyber safety | * Develop their research skills to decide what information is appropriate. * Understand some elements of how search engines select and rank results. * Question the plausibility and quality of information. * Develop and refine their ideas and text collaboratively. * Develop their understanding of online s |
| 5.5 We are bloggers - Sharing experiences and opinions | * Become familiar with blogs as a medium and a genre of writing. * Create a sequence of blog posts on a theme. * Incorporate additional media. * Comment on the posts of others. * Develop a critical, reflective view of a range of media, including text. |
| 5.6 We are architects - Creating a virtual space | * Understand the work of architects, designers and engineers working in 3D. * Develop familiarity with a simple CAD (computer aided design) tool. * Develop spatial awareness by exploring and experimenting with a 3D virtual environment. * Develop greater aesthetic awareness. |

**HARCOURT PRIMARY SCHOOL – COMPUTING CURRICULUM - YEAR SIX**

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| **UNIT OF STUDY** | **KEY LEARNING** |
| 6.1 We are adventure gamers - Making a text-based adventure game | * Learn some of the syntax of a text-based programming language. * Use commands to display text on screen, accept typed user input, store and retrieve data using variables and select from a list. * Plan a text-based adventure with multiple ‘rooms’ and user interaction. * Thoroughly debug the program. |
| 6.2 We are computational thinkers - Mastering algorithms for searching, sorting and mathematics | * Develop the ability to reason logically about algorithms. * Understand how some key algorithms can be expressed as programs. * Understand that some algorithms are more efficient than others for the same problem. * Understand common algorithms for sorting and searching. * Appreciate algorithmic approaches to problems in mathematics. |
| 6.3 We are advertisers - Creating a short television advert | * Think critically about how video is used to promote a cause. * Storyboard an effective advert for a cause. * Work collaboratively to shoot suitable original footage and source additional content, acknowledging intellectual property rights. * Work collaboratively to edit the assembled content to make an effective advert. |
| 6.4 We are network technicians -Exploring computer networks including the internet | * Appreciate that computer networks transmit and receive information digitally. * Understand the basic hardware needed for computer networks to work. * Understand key features of internet communication protocols. * Develop a basic understanding of how domain names are converted to numerical IP addresses. |
| 6.5 We are travel writers - Using media and mapping to document a trip | * Research a location online using a range of resources appropriately. * Understand the safe use of mobile technology, including GPS. * Capture images, audio and video while on location. * Showcase shared media content through a mapping layer. |
| 6.6 We are publishers Creating a yearbook or magazine | * Manage or contribute to large collaborative projects, facilitated using online tools. * Write and review content. * Source digital media while demonstrating safe, respectful and responsible use. * Design and produce a high-quality print document. |