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

|  |  |
| --- | --- |
| **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**

|  |  |
| --- | --- |
| **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**

|  |  |
| --- | --- |
| **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**

|  |  |
| --- | --- |
| **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**

|  |  |
| --- | --- |
| **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**

|  |  |
| --- | --- |
| **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.
 |