

## KS2 Computing Knowledge, Skills and Vocabulary Progression

**Transition Year (Y3/4 and Y4/5)**

| Class/Year Group                 | Autumn 1                                                                                                                                                                                                           | Autumn 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Spring 1                                                                                                                                                                                                                                                                                                                                                                        | Spring 2                                                                                                                                                                                                                                                                          | Summer 1                                                                                                                                                                                                                                                                                    | Summer 2                                                                                                                                                                                                                                                                               |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year (2022-2023) Transition Year |                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                        |
| Hawthorn                         | Kapow Catch up unit 1<br>Y3                                                                                                                                                                                        | Kapow Catch up unit 2<br>Y3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Computing systems and networks 1: Networks and the internet<br>Y3                                                                                                                                                                                                                                                                                                               | Programming: Scratch<br>Y3                                                                                                                                                                                                                                                        | Computing systems and networks:3<br>Y3                                                                                                                                                                                                                                                      | Data handling: Comparison cards databases<br>Y3                                                                                                                                                                                                                                        |
| Knowledge                        |                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                        |
|                                  | <p>To login to a computer and access a website.</p> <p>To use software to create simple design.</p> <p>To recognise parts of a computer.</p> <p>To recognise how technology is controlled.</p> <p>To sort data</p> | <p>To know that touch typing is the fastest way to type.</p> <p>To know that I can make text a different style, size and colour.</p> <p>To know that "copy and paste" is a quick way of duplicating text.</p> <p>To understand that an algorithm is when instructions are put in an exact order</p> <p>To know that input devices get information into a computer and that output devices get information out of a computer</p> <p>To understand that decomposition means breaking a problem into manageable chunks and that it is important in computing</p> <p>To know that we call errors in an algorithm 'bugs' and fixing these 'debugging'</p> | <p>To understand what a network is and how a school network might be organised</p> <p>To know that a server is central to a network and responds to requests made</p> <p>To know how the internet uses networks to share files.</p> <p>To know that a router connects us to the internet</p> <p>To know what a packet is and why it is important for website data transfer.</p> | <p>To know that Scratch is a programming language and some of its basic functions</p> <p>To understand how to use loops to improve programming.</p> <p>To understand how decomposition is used in programming</p> <p>To understand that you can remix and adapt existing code</p> | <p>To know the roles that inputs and outputs play on computers</p> <p>To know what some of the different components inside a computer are e.g. CPU, RAM, hard drive, and how they work together</p> <p>To know what a tablet is and how it is different from a laptop/desktop computer.</p> | <p>To know that a database is a collection of data stored in a logical, structured and orderly manner.</p> <p>To know that computer databases can be useful for sorting and filtering data.</p> <p>To know that different visual representations of data can be made on a computer</p> |
| Skills                           |                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                        |

|                                |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                      |                                                                                                                 |
|--------------------------------|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <p><b>Computer Science</b></p> | <p>To name key parts of a computer and their purpose.</p> <p>Explain the keyboard and it's functions.</p> | <p>Developing confidence with the keyboard and the basics of touch typing.</p> <p>Recognising that some devices are input devices and others are output devices.</p> <p>Learning that decomposition means breaking a problem down into smaller parts.</p> <p>Using decomposition to solve unplugged challenges.</p> <p>Developing the skills associated with sequencing in unplugged activities.</p> <p>Following a basic set of instructions.</p> <p>Assembling instructions into a simple algorithm</p> <p>Learning to debug instructions when things go wrong.</p> <p>Learning to debug an algorithm in an unplugged scenario.</p> <p>Using software (and unplugged means) to create story animations.</p> <p>Using an algorithm to write a basic computer program.</p> <p>Using loop blocks when programming to repeat an instruction more than once</p> | <p>Learning about the purpose of routers.</p> <p>Understanding the role of the key components of a network</p> <p>Understanding that websites &amp; videos are files that are shared from one computer to another.</p> <p>Learning about the role of packets</p> <p>Understanding how networks work and their purpose</p> <p>Identifying the key components within a network, including whether they are wired or wireless.</p> <p>Recognising links between networks and the internet.</p> <p>Learning how data is transferred</p> | <p>Using decomposition to explore the code behind an animation.</p> <p>Using repetition in programs.</p> <p>Using logical reasoning to explain how simple algorithms work.</p> <p>Explaining the purpose of an algorithm.</p> <p>Forming algorithms independently.</p> <p>Using logical thinking to explore more complex software; predicting, testing and explaining what it does</p> <p>Incorporating loops to make code more efficient.</p> <p>Continuing existing code.</p> <p>Making reasonable suggestions for how to debug their own and others' code</p> | <p>Understanding what the different components of a computer do and how they work together</p> <p>Drawing comparisons across different types of computers.</p> <p>Using decomposition to explain the parts of a laptop computer.</p> | <p>Using logical thinking to explore more complex software; predicting, testing and explaining what it does</p> |
|--------------------------------|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|

|                               |                                                                                                                                                                             |                                                                                                                                                                         |                                                                                                                                          |                                                                                                                                                |                                                                                                                                                                      |                                                                                                                                               |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Information Technology</b> | Understand why we need to login to a computer.                                                                                                                              | Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts.                                                           |                                                                                                                                          |                                                                                                                                                |                                                                                                                                                                      | Understanding the vocabulary associated with databases: field, record, data                                                                   |
|                               | Log in and out of a computer account.                                                                                                                                       |                                                                                                                                                                         |                                                                                                                                          |                                                                                                                                                |                                                                                                                                                                      |                                                                                                                                               |
|                               | Open a graphics editing program.                                                                                                                                            | Using word processing software to type and reformat text.                                                                                                               |                                                                                                                                          |                                                                                                                                                |                                                                                                                                                                      | Learning about the pros and cons of digital versus paper databases                                                                            |
|                               | Create a digital image using a graphics editor.                                                                                                                             | Searching for appropriate images to use in a document.                                                                                                                  |                                                                                                                                          |                                                                                                                                                |                                                                                                                                                                      | Sorting and filtering databases to easily retrieve information                                                                                |
|                               | Explain that technology follows instructions.                                                                                                                               | Understanding what online information is                                                                                                                                |                                                                                                                                          |                                                                                                                                                |                                                                                                                                                                      | Creating and interpreting charts and graphs to understand data                                                                                |
|                               | Make predictions about what technology will do.                                                                                                                             | Using software (and unplugged means) to create story animations.                                                                                                        |                                                                                                                                          |                                                                                                                                                |                                                                                                                                                                      | Recognising how social media platforms are used to interact.                                                                                  |
|                               |                                                                                                                                                                             | Using an algorithm to write a basic computer program.                                                                                                                   |                                                                                                                                          |                                                                                                                                                |                                                                                                                                                                      |                                                                                                                                               |
|                               |                                                                                                                                                                             | Using loop blocks when programming to repeat an instruction more than once                                                                                              |                                                                                                                                          |                                                                                                                                                |                                                                                                                                                                      |                                                                                                                                               |
| <b>Digital Literacy</b>       | Save a digital image to a folder.                                                                                                                                           |                                                                                                                                                                         |                                                                                                                                          |                                                                                                                                                |                                                                                                                                                                      |                                                                                                                                               |
|                               | Click and drag objects.                                                                                                                                                     |                                                                                                                                                                         |                                                                                                                                          |                                                                                                                                                |                                                                                                                                                                      |                                                                                                                                               |
|                               | Identify questions to sort data in the most efficient way.                                                                                                                  |                                                                                                                                                                         |                                                                                                                                          |                                                                                                                                                |                                                                                                                                                                      |                                                                                                                                               |
|                               | Create a branching database                                                                                                                                                 |                                                                                                                                                                         |                                                                                                                                          |                                                                                                                                                |                                                                                                                                                                      |                                                                                                                                               |
| <b>Vocabulary</b>             |                                                                                                                                                                             |                                                                                                                                                                         |                                                                                                                                          |                                                                                                                                                |                                                                                                                                                                      |                                                                                                                                               |
| <b>Vocabulary</b>             | log in, login, log off, computer, mouse, mouse pointer, click, keyboard, screen, password, account, software, sketchpad, clipart, tools, brushes, eraser, predict, explore, | backspace, bold, copy, copyright, cut, delete, forward button, highlight, home row, home screen, image, import, italics, keyboard, keyboard character, keyword, layout, | Cables, component, Connection, Corrupted Data, Desktop, Device, DSL, Fibre, File, Internet Laptop, Network, Network map, Network switch, | Algorithm, Animation Application, Code, Code block, Coding application Debug, Decompose Interface, Game, Loop Predict, Program, Remixing code, | Algorithm, Assemble CPU (central processing unit), Data, Decompose Desktop, Disassemble, GPU (graphics processing unit), Hard drive, HDD (hard disk drive), Infinite | Categorise, Category Chart, Data, Database Excel, Fields, Filter Graph, Information Interpret, PDF Questionnaire, Record Representation, Sort |

|  |                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                        |                                                 |                                                                                                                                                                                              |              |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
|  | explain, graphics, editing software, create, programme, digital image, folder, document, save, components, annotate, input, output, robot, device, technology, branching database, categorise, identify | navigate, paste, redo, search, space bar, text, text effects, touch, algorithm, automatic, bug, chunks, clear, code, debug, decompose, decomposition, device, directions, input, instructions, manageable, motion, order, organise, output, precise, programming, problem, robot, sensor, sequence, solution, specific, steps, tasks, virtual assistant, typing, underline, undo, word processing, algorithm, animation, blocks, bug, button, CGI, computer code, code (verb), debug, fluid, icon, imitate, instructions, loop, 'on tap', programming, repeat, Scratch JR, sequence, sound recording | Packets, Radio waves, Router, Server, Submarine cables, Tablet Text map, The Cloud, Web server, Website, Website trackers, WiFi, Wired | Repetition code, Review, Scratch, Sprite Tinker | loop, Input, Keyboard, Laptop Memory, Microphone Monitor, Mouse, Output Photocopier, Program QR Code, RAM (random access memory), ROM (read only memory), Storage, Tablet device, Technology | Spreadsheets |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|

| Class/Year Group                        | Autumn 1                                                                                                                                                                    | Autumn 2                                                                                                                                                                  | Spring 1                                                                                                                                                                                                                                                    | Spring 2                                                                                                                                                                                                                                                                                     | Summer 1                                                                                                                                                                                                                                                  | Summer 2                                                                                                                                                                                                                                                 |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Year (2022-2023) Transition Year</b> |                                                                                                                                                                             |                                                                                                                                                                           |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                          |
| <b>Juniper</b>                          | Kapow Catch up unit 1<br>Y5                                                                                                                                                 | Kapow Catch up unit 2<br>Y5                                                                                                                                               | Computing systems and networks<br>Y5                                                                                                                                                                                                                        | Programming 1:Music<br>Y5                                                                                                                                                                                                                                                                    | Creating media:<br>Stop motion animation<br>Y5                                                                                                                                                                                                            | Data handling: Mars Rover 1<br>Y5                                                                                                                                                                                                                        |
| <b>Knowledge</b>                        |                                                                                                                                                                             |                                                                                                                                                                           |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                          |
|                                         | <p>To get to know the keyboard.</p> <p>To get to know the key parts of a computer.</p> <p>To explain computational thinking.</p> <p>To handle data relating to weather.</p> | <p>To investigate Scratch.</p> <p>To create basic loops in Scratch.</p> <p>To make a simple animation in Scratch.</p> <p>To develop a simple story action in Scratch.</p> | <p>To know how search engines work.</p> <p>To understand that anyone can create a website and therefore we should take steps to check the validity of websites.</p> <p>To know that web crawlers are computer programs that crawl through the internet.</p> | <p>To know that a soundtrack is music for a film/video and that one way of composing these is on programming software.</p> <p>To understand that using loops can make the process of writing music simpler and more effective.</p> <p>To know how to adapt their music while performing.</p> | <p>To know that a decomposition of an idea is important when creating stop-motion animations.</p> <p>To understand that stop motion animation is an animation filmed one frame at a time using models, and with tiny changes between each photograph.</p> | <p>To know that Mars Rover is a motor vehicle that collects data from space by taking photos and examining samples of rock.</p> <p>To know what numbers using binary code look like and be able to identify how messages can be sent in this format.</p> |

|                               |                                                                                                                                                           |                                                                                                                                                            |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                               |                                                                                                                                                           | To introduce the use of variables in a Scratch programme.                                                                                                  | To understand what copyright is.                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | To know that editing is an important feature of making and improving a stop motion animation.                                   | To understand that RAM is Random Access Memory and acts as the computer's working memory.<br><br>To know what simple operations can be used to calculate bit patterns.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Skills</b>                 |                                                                                                                                                           |                                                                                                                                                            |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Computer Science</b>       | <p>To begin to learn to touch type.</p> <p>To be able to name the key parts of a computer.</p> <p>To explain the purpose of different computer parts.</p> | <p>To predict what different codes will do.</p> <p>To use repetition (a loop) in a program.</p> <p>To program an animation.</p> <p>To program a story.</p> |                                                                                                                                                     | <p>Predicting how software will work based on previous experience.</p> <p>Writing more complex algorithms for a purpose.</p> <p>Iterating and developing their programming as they work.</p> <p>Confidently using loops in their programming.</p> <p>Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected.</p> <p>Writing code to create a desired effect.</p> <p>Using a range of programming commands.</p> <p>Using repetition within a program.</p> <p>Amending code within a live scenario</p> | <p>Decomposing animations into a series of images.</p> <p>Decomposing a story to be able to plan a program to tell a story.</p> | <p>Learning that external devices can be programmed by a separate computer.</p> <p>Learning the difference between ROM and RAM.</p> <p>Recognising how the size of RAM affects the processing of data.</p> <p>Learning the vocabulary associated with data: data and transmit.</p> <p>Recognising that computers transfer data in binary and understanding simple binary addition.</p> <p>Relating binary signals (Boolean) to the simple character-based language, ASCII.</p> <p>Learning that messages can be sent by binary code, reading binary up to eight characters and carrying out binary calculations.</p> |
| <b>Information Technology</b> | To understand that computational thinking includes – decomposition, pattern recognition, abstraction and algorithm.                                       |                                                                                                                                                            | <p>Developing searching skills to help find relevant information on the internet.</p> <p>Learning how to use search engines effectively to find</p> | <p>Using logical thinking to explore software more independently, making predictions based on their previous experience.</p>                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>Using video editing software to animate.</p> <p>Independently learning how to use 3D design software package Tinkercad.</p>  | <p>Understanding how data is collected in remote or dangerous places.</p> <p>Understanding how data might be used to tell us about a location.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

|                         |                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                | information, focussing on keyword searches and evaluating search returns.<br><br>Learn about different forms of communication that have developed with the use of technology.                                       | Using a software programme (Sonic Pi/Scratch) to create Music<br><br>Identify ways to improve and edit programs, videos, images etc.                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                           | Learn about different forms of communication that have developed with the use of technology.                                                                                                                                                                                                                                                                             |
| <b>Digital Literacy</b> | To log data taken from online sources within a spreadsheet.                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                | Recognising that information on the Internet might not be true or correct and learning ways of checking validity.                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Vocabulary</b>       |                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Vocabulary</b>       | Keyboard<br>Keyboard character<br>Space bar<br>Word processing software<br>Touch typing<br>Delete<br>Backspace<br>computer<br>desktop<br>laptop<br>mouse<br>monitor<br>buttons<br>Computational thinking<br>Decomposition<br>Abstraction<br>Algorithm<br>Code<br>Weather<br>Degrees<br>Measurement<br>Accurate<br>Evaporation<br>Condensation | Tinkering<br>Programming application<br>Coding application<br>Code<br>Application<br>Interface<br>Sprite<br>Review<br>Predict<br>Repetition<br>Loop<br>Program<br>Code<br>Animation<br>Program<br>Decompose<br>Plan<br>Coding blocks<br>Remixing code<br>Storytelling<br>Debug | algorithm, appropriate, copyright, correct, credit, data leak, deceive, fair, fake, inappropriate, incorrect, index, information, keywords, network, privacy, rank, real, search engine, TASK, web crawler, website | beat, bugs, coding, command, debug, decompose, error, instructions, loop, melody, mindmap, music, output, performance, pitch, play, predict, programming, rhythm, tempo, timbre, tinker, tutorials, typing<br>(Sonic Pi version add in: buffer, format, live loops, rehearsal, repetition, sleep, Sonic Pi, soundtrack, spacing, typo)<br>(Scratch version add in: plan, repeat, scratch, soundtrack, spacing) | animation, animator, background, character, decomposition, design, edit, evaluate, flip book, fluid movement, frame, model, moving images, still image, storyboard, thaumatrope, zoetrope<br>(Option 1 add in: digital device, onion skinning, stop motion)<br>(Option 2 add in: effects, photos, script) | 8-bit binary, addition, ASCII, binary code, boolean, byte, communicate, construction, CPU, data transmission, decimal numbers, design, discovery, distance, hexadecimal, input, instructions, internet, Mars Rover, moon, numerical data, output, planet, radio signal, RAM, research, scientist, sequence, signal, simulation, space, subtraction, technology, transmit |

## Year B 2023-24

### Hawthorn and Juniper

| Class/Year Group               | Autumn 1                                                                                                                                                                                                                                                                          | Autumn 2                                                                                                                                                                                                                                                                            | Spring 1                                                                                                                                                                                                                                                                        | Spring 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Summer 1                                                                                                                                                                                                                                                                                                                    | Summer 2                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Year (2023-2024) Year B</b> |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                 |
| <b>Hawthorn and Juniper</b>    | <b>Computing systems and networks:<br/>Collaborative learning<br/><br/>Y4</b>                                                                                                                                                                                                     | <b>Programming 1:<br/>Further coding with Scratch<br/>Y4</b>                                                                                                                                                                                                                        | <b>Creating media:<br/>Website design<br/>Y4</b>                                                                                                                                                                                                                                | <b>Skills showcase:<br/>HTML<br/>Y4</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Programming 2:<br/>Computational thinking<br/>Y4</b>                                                                                                                                                                                                                                                                     | <b>Data handling:<br/>Investigating weather<br/>Y4</b>                                                                                                                                                                                                                                                                                          |
| <b>Knowledge</b>               |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                 |
|                                | <p>To understand that software can be used collaboratively online to work as a team</p> <p>To know what type of comments and suggestions on a collaborative document can be helpful</p> <p>To know you can use images, text, transitions and animation in presentation slides</p> | <p>To understand that a variable is a value that can change (depending on conditions) and know that you can create them in Scratch</p> <p>To know what a conditional statement is in programming.</p> <p>To understand that variables can help you to create a quiz on Scratch.</p> | <p>To know that a website is a collection of pages that are all connected.</p> <p>To know that websites usually have a homepage and subpages as well as clickable links to new pages, called hyperlinks</p> <p>To know that websites should be informative and interactive.</p> | <p>To understand and identify examples of HTML tags.</p> <p>To understand what changing the HTML and CSS does to alter the appearance of an object on the web .</p> <p>To understand that copyright means that those images are protected and to understand that we should do a "creative commons" image search if we wish to use images from the internet</p> <p>To know what "fake news" is and ways to spot websites that carry this type of misinformation</p> <p>To know what the "inspect" elements tool is and ways of using it to explore and alter text and images</p> | <p>To know that combining computational thinking skills can help you to solve a problem.</p> <p>To understand that pattern recognition means identifying patterns to help them work out how the code works.</p> <p>To understand that algorithms can be used for a number of purposes e.g. animation, games design etc.</p> | <p>To know that computers can use different forms of input to sense the world around them so that they can record and respond to data ('sensor data')</p> <p>To know that a weather machine is an automated machine that respond to sensor data.</p> <p>To know that a weather machine is an automated machine that respond to sensor data.</p> |
| <b>Skills</b>                  |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                 |
| <b>Computer Science</b>        | Understanding that computer networks provide multiple services, such as the World Wide Web, and opportunities for                                                                                                                                                                 | Using decomposition to solve a problem by finding out what code was used.                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                 | Remixing existing code.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Using decomposition to solve a problem by finding out what code was used.                                                                                                                                                                                                                                                   | <p>Using tablets or digital cameras to film a weather forecast.</p> <p>Understanding that weather stations use</p>                                                                                                                                                                                                                              |

|                               |                                                                                                                                             |                                                                                                                                                                                                                                                    |                                                                                                                                                                                |                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                              |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
|                               | communication and collaboration.                                                                                                            | <p>Using decomposition to understand the purpose of a script of code</p> <p>Creating algorithms for a specific purpose</p> <p>Coding a simple game.</p> <p>Incorporating variables to make code more efficient.</p> <p>Remixing existing code.</p> |                                                                                                                                                                                |                                                                                                                                                          | <p>Using decomposition to understand the purpose of a script of code</p> <p>Identifying patterns through unplugged activities.</p> <p>Using past experiences to help solve new problems.</p> <p>Using abstraction to identify the important parts when completing both plugged and unplugged activities.</p> <p>Creating algorithms for a specific purpose.</p> <p>Using abstraction and pattern recognition to modify code</p> | sensors to gather and record data which predicts the weather |
| <b>Information Technology</b> | <p>Use online software for documents, presentations, forms and spreadsheets.</p> <p>Using software to work collaboratively with others.</p> |                                                                                                                                                                                                                                                    | <p>Building a web page and creating content for it</p> <p>Designing and creating a webpage for a given purpose.</p> <p>Using software to work collaboratively with others.</p> | <p>Building a web page and creating content for it</p> <p>Understanding that information found by searching the internet is not all grounded in fact</p> | <p>Using keywords to effectively search for information on the internet.</p> <p>Searching the internet for data</p> <p>Designing a device which gathers and records sensor data</p> <p>Recording data in a spreadsheet independently.</p> <p>Sorting data in a spreadsheet to compare using the 'sort by...' option</p> <p>Understanding that data is used to forecast weather</p>                                              |                                                              |
| <b>Digital Literacy</b>       | Recognising what appropriate behaviour is                                                                                                   |                                                                                                                                                                                                                                                    |                                                                                                                                                                                | Recognising that information on the Internet                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                              |



|                   |                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                       |                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   | when collaborating with others online.                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                            | might not be true or correct and that some sources are more trustworthy than others.                                                                                                                                                                                  |                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Vocabulary</b> |                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                       |                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Vocabulary</b> | Animations, Average<br>Bar chart, Collaboration<br>Comment<br>Contribution<br>Data<br>Edited<br>Email account<br>Format<br>Freeze<br>Icon<br>Images<br>Insert<br>Link<br>Multiple choice<br>Numerical data<br>Pie chart<br>Presentations<br>Resolved<br>Reviewing comments<br>Share<br>Slides<br>Software<br>Spreadsheets<br>Suggestions<br>Survey<br>Teamwork | Broadcast block<br>Code blocks<br>Conditional<br>Coordinates<br>Decomposition<br>Features<br>Game<br>Information<br>Negative numbers<br>Orientation<br>Parameters<br>Position<br>Program<br>Project<br>Script<br>Sprite<br>Stage<br>Tinker<br>Variables | Assessment<br>Audience<br>Checklist<br>Collaboration<br>Content<br>Contribution<br>Create<br>Design<br>Embed<br>Evaluate<br>Features<br>Hobby<br>Homepage<br>Hyperlinks<br>Images<br>Insert<br>Online<br>Plan<br>Progress<br>Published<br>Record<br>Review<br>Style<br>Subpage<br>Tab<br>Theme<br>Web page | Code<br>Component<br>Content<br>Copyright<br>CSS<br>End tag<br>Fake news<br>Hacking<br>Heading<br>Headline<br>Hex code<br>HTML<br>Input<br>Internet browser<br>Output<br>Paragraph<br>Permission<br>Remixing<br>Script<br>Start tag<br>Tags<br>Text<br>URL<br>Webpage | Abstraction<br>Algorithm<br>Code<br>Computational thinking<br>Decomposition<br>Input<br>Logical reasoning<br>Output<br>Pattern recognition<br>Script<br>Sequence<br>Variable | Accurate<br>Backdrop<br>Climate zone<br>Cold<br>Collaboration<br>Condensation<br>Cylinder<br>Degrees<br>Evaporation<br>Extreme weather<br>Forecast<br>Heat sensor<br>Lightning<br>Measurement<br>Pinwheel<br>Presenter<br>Rain<br>Satellite<br>Script<br>Sensitive<br>Sensor data<br>Solar panel<br>Tablet/Digital camera<br>Temperature<br>Thermometer<br>Tornado<br>Warm<br>Weather |

## 2024 onwards (Year A)

| Class/Year Group           | Autumn 1                                                                                                                                                                                                                                                                                                                                                                        | Autumn 2                                                                                                                                                                                                                                                                          | Spring 1                                                                                                                                                                                                                                                                                                             | Spring 2                                                                                                                                                                                                                                                                                    | Summer 1                                                                                                                                                                                                                                                  | Summer 2                                                                                                                                                                                                                                                                              |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year (2024 onwards) Year A |                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                       |
| Hawthorn                   | Computing systems and networks: Networks and the internet Y3                                                                                                                                                                                                                                                                                                                    | Programming: Scratch Y3<br>OR <b>Programming with Probots</b>                                                                                                                                                                                                                     | Computing systems and networks: Emailing Y3                                                                                                                                                                                                                                                                          | Computing systems and networks: Journey inside a computer Y3                                                                                                                                                                                                                                | Creating media: Video trailers Y3                                                                                                                                                                                                                         | Data handling: Comparison card databases Y3                                                                                                                                                                                                                                           |
| Knowledge                  |                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                       |
|                            | <p>To understand what a network is and how a school network might be organised</p> <p>To know that a server is central to a network and responds to requests made</p> <p>To know how the internet uses networks to share files.</p> <p>To know that a router connects us to the internet</p> <p>To know what a packet is and why it is important for website data transfer.</p> | <p>To know that Scratch is a programming language and some of its basic functions</p> <p>To understand how to use loops to improve programming.</p> <p>To understand how decomposition is used in programming</p> <p>To understand that you can remix and adapt existing code</p> | <p>To understand that email stands for 'electronic mail.'</p> <p>To know that an attachment is an extra file added to an email.</p> <p>To understand that emails should contain appropriate and respectful content.</p> <p>To know that cyberbullying is bullying using electronics such as a computer or phone.</p> | <p>To know the roles that inputs and outputs play on computers.</p> <p>To know what some of the different components inside a computer are e.g. CPU, RAM, hard drive, and how they work together</p> <p>To know what a tablet is and how it is different from a laptop/desktop computer</p> | <p>To know that different types of camera shots can make my photos or videos look more effective.</p> <p>To know that I can edit photos and videos using film editing software.</p> <p>To understand that I can add transitions and text to my video.</p> | <p>To know that a database is a collection of data stored in a logical, structured and orderly manner</p> <p>To know that computer databases can be useful for sorting and filtering data.</p> <p>To know that different visual representations of data can be made on a computer</p> |
| Skills                     |                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                       |
| Computer Science           |                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                             | Using logical thinking to explore more complex software; predicting, testing and explaining what it does                                                                                                                                                  | Using logical thinking to explore more complex software; predicting, testing and explaining what it does                                                                                                                                                                              |
| Information Technology     |                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                   | <p>Learning to log in and out of an email account</p> <p>Writing an email including a subject, 'to' and 'from'</p> <p>Sending an email with an attachment.</p> <p>Replying to an email.</p>                                                                                                                          |                                                                                                                                                                                                                                                                                             | <p>Taking photographs and recording video to tell a story</p> <p>Using software to edit and enhance their video adding music, sounds and text on screen with transitions.</p>                                                                             | <p>Understanding the vocabulary associated with databases: field, record, data</p> <p>Learning about the pros and cons of digital versus paper databases</p> <p>Sorting and filtering databases to easily retrieve information</p>                                                    |

|                         |                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                               |                                                                                                                                                            |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                | Understanding the purpose of emails                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                               | <p>Creating and interpreting charts and graphs to understand data</p> <p>Recognising how social media platforms are used to interact.</p>                  |
| <b>Digital Literacy</b> |                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                | <p>Learning about cyberbullying</p> <p>Learning that not all emails are genuine, recognising when an email might be fake and what to do about it.</p>                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                               |                                                                                                                                                            |
| <b>Vocabulary</b>       |                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                               |                                                                                                                                                            |
| <b>Vocabulary</b>       | Cables, component, Connection, Corrupted Data, Desktop, Device, DSL, Fibre, File, Internet Laptop, Network, Network map, Network switch, Packets, Radio waves, Router, Server, Submarine cables, Tablet Text map, The Cloud, Web server, Website, Website trackers, WiFi, Wired | Algorithm, Animation Application, Code, Code block, Coding application Debug, Decompose Interface, Game, Loop Predict, Program, Remixing code, Repetition code, Review, Scratch, Sprite Tinker | Attachment, Bcc (Blind carbon copy), Cc (Carbon copy), Compose, Content, Cyberbullying, Document, Domain Download, Email Email account, Email address, Emoji, Emotions, Fake Font, Genuine, Hacker Icons, Inbox, Information Link, Log in, Log out, Negative language, Password, Personal information, positive language | Algorithm, Assemble CPU (central processing unit), Data, Decompose Desktop, Disassemble, GPU (graphics processing unit), Hard drive, HDD (hard disk drive), Infinite loop, Input, Keyboard, Laptop Memory, Microphone Monitor, Mouse, Output Photocopier, Program QR Code, RAM (random access memory), ROM (read only memory), Storage, Tablet device, Technology | Application, Camera angle, Clip, Cross blur Cross fade, Cross zoom Desktop, Digital device Dip to black, Directional wipe, Edit, Film, Film editing software, Graphics, Import, Key events, Laptop, Music Photo, Plan, Recording, Sound effects, storyboard, Time code, Trailer, Transition, Video, Voiceover | Categorise, Category Chart, Data, Database Excel, Fields, Filter Graph, Information Interpret, PDF Questionnaire, Record Representation, Sort Spreadsheets |

## Juniper (Years 4 and 5)

| Class/Year Group                  | Autumn 1                                                                                                                                                                                                                                                                                            | Autumn 2                                                                                                                                                                                                                                                                                     | Spring 1                                                                                                                                                                                                                                                                                                                                                                                                                               | Spring 2                                                                                                                                                                                                                                                                                                                       | Summer 1                                                                                                                                                                                                                                                                                                                                                     | Summer 2                                                                                                                                                                                                                                                                                                          |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Year (2024 onwards Year A)</b> |                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                   |
| <b>Juniper</b>                    | Computing systems and networks: Search engines Y5                                                                                                                                                                                                                                                   | Programming 1: Programming music Y5                                                                                                                                                                                                                                                          | Data handling: Mars Rover 1 Y5                                                                                                                                                                                                                                                                                                                                                                                                         | Programming 2: Micro:bit Y5                                                                                                                                                                                                                                                                                                    | Creating media: Stop motion animation Y5                                                                                                                                                                                                                                                                                                                     | Skills showcase: Mars Rover Y5                                                                                                                                                                                                                                                                                    |
| <b>Knowledge</b>                  |                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                   |
|                                   | <p>To know how search engines work.</p> <p>To understand that anyone can create a website and therefore we should take steps to check the validity of websites.</p> <p>To know that web crawlers are computer programs that crawl through the internet.</p> <p>To understand what copyright is.</p> | <p>To know that a soundtrack is music for a film/video and that one way of composing these is on programming software.</p> <p>To understand that using loops can make the process of writing music simpler and more effective.</p> <p>To know how to adapt their music while performing.</p> | <p>To know that Mars Rover is a motor vehicle that collects data from space by taking photos and examining samples of rock.</p> <p>To know what numbers using binary code look like and be able to identify how messages can be sent in this format.</p> <p>To understand that RAM is Random Access Memory and acts as the computer's working memory.</p> <p>To know what simple operations can be used to calculate bit patterns.</p> | <p>To know that a Micro:bit is a programmable device.</p> <p>To know that Micro:bit uses a block coding language similar to Scratch.</p> <p>To understand and recognise coding structures including variables.</p> <p>To know what techniques to use to create a program for a specific purpose (including decomposition).</p> | <p>To know that decomposition of an idea is important when creating stop-motion animations.</p> <p>To understand that stop motion animation is an animation filmed one frame at a time using models, and with tiny changes between each photograph.</p> <p>To know that editing is an important feature of making and improving a stop motion animation.</p> | <p>To understand that bit patterns represent images as pixels.</p> <p>To understand that the data for digital images can be compressed.</p> <p>To know the difference between ROM and RAM.</p> <p>To understand various techniques that will improve the design of a 3D object (using CAD software).</p>          |
| <b>Skills</b>                     |                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                   |
| <b>Computer Science</b>           |                                                                                                                                                                                                                                                                                                     | <p>Predicting how software will work based on previous experience.</p> <p>Writing more complex algorithms for a purpose.</p> <p>Iterating and developing their programming as they work.</p> <p>Confidently using loops in their programming.</p> <p>Using a more systematic</p>             | <p>Learning that external devices can be programmed by a separate computer.</p> <p>Learning the difference between ROM and RAM.</p> <p>Recognising how the size of RAM affects the processing of data.</p> <p>Learning the vocabulary associated with data: data and transmit.</p>                                                                                                                                                     | <p>Decomposing a program without support.</p> <p>Predicting how software will work based on previous experience.</p> <p>Writing more complex algorithms for a purpose.</p> <p>Programming an animation.</p> <p>Iterating and developing their programming as they work.</p>                                                    | <p>Decomposing animations into a series of images.</p> <p>Decomposing a story to be able to plan a program to tell a story.</p>                                                                                                                                                                                                                              | <p>Learning the difference between ROM and RAM</p> <p>Recognising how the size of RAM affects the processing of data.</p> <p>Understanding the fetch, decode, execute cycle.</p> <p>Learning how the data for digital images can be compressed.</p> <p>Recognising that computers transfer data in binary and</p> |

|                               |                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                               |                                                                                                                                                         |                                                                                                                                                                                                                                  |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                               |                                                                                                                                                                                                                                                                                                                                   | <p>approach to debugging code, justifying what is wrong and how it can be corrected.</p> <p>Writing code to create a desired effect.</p> <p>Using a range of programming commands.</p> <p>Using repetition within a program.</p> <p>Amending code within a live scenario</p> | <p>Recognising that computers transfer data in binary and understanding simple binary addition.</p> <p>Relating binary signals (Boolean) to the simple character-based language, ASCII.</p> <p>Learning that messages can be sent by binary code, reading binary up to eight characters and carrying out binary calculations.</p> | <p>Confidently using loops in their programming.</p> <p>Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected.</p> <p>Writing code to create a desired effect.</p> <p>Using a range of programming commands.</p> <p>Using repetition within a program.</p> |                                                                                                                                                         | <p>understanding simple binary addition.</p> <p>Understanding how bit patterns represent images as pixels.</p>                                                                                                                   |
| <b>Information Technology</b> | <p>Developing searching skills to help find relevant information on the internet.</p> <p>Learning how to use search engines effectively to find information, focussing on keyword searches and evaluating search returns.</p> <p>Learn about different forms of communication that have developed with the use of technology.</p> | <p>Using logical thinking to explore software more independently, making predictions based on their previous experience.</p> <p>Using a software programme (Sonic Pi/Scratch) to create Music</p> <p>Identify ways to improve and edit programs, videos, images etc.</p>     | <p>Understanding how data is collected in remote or dangerous places.</p> <p>Understanding how data might be used to tell us about a location.</p> <p>Learn about different forms of communication that have developed with the use of technology.</p>                                                                            | <p>Using logical thinking to explore software more independently, making predictions based on their previous experience.</p> <p>Identify ways to improve and edit programs, videos, images etc.</p>                                                                                                           | <p>Using video editing software to animate.</p> <p>Independently learning how to use 3D design software package TinkerCAD.</p>                          | <p>Using logical thinking to explore software more independently, making predictions based on their previous experience.</p> <p>Learn about different forms of communication that have developed with the use of technology.</p> |
| <b>Digital Literacy</b>       | <p>Recognising that information on the Internet might not be true or correct and learning ways of checking validity.</p>                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                               |                                                                                                                                                         |                                                                                                                                                                                                                                  |
| <b>Vocabulary</b>             |                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                               |                                                                                                                                                         |                                                                                                                                                                                                                                  |
| <b>Vocabulary</b>             | <p>algorithm, appropriate, copyright, correct, credit, data leak, deceive, fair, fake, inappropriate, incorrect, index, information, keywords, network,</p>                                                                                                                                                                       | <p>beat, bugs, coding, command, debug, decompose, error, instructions, loop, melody, mindmap, music, output, performance, pitch, play, predict,</p>                                                                                                                          | <p>8-bit binary, addition, ASCII, binary code, boolean, byte, communicate, construction, CPU, data transmission, decimal numbers, design, discovery,</p>                                                                                                                                                                          | <p>algorithm, animation, app, blocks, bluetooth, code block, connection, create, debug, decompose, designing, desktop, device, download, images, input,</p>                                                                                                                                                   | <p>animation, animator, background, character, decomposition, design, edit, evaluate, flip book, fluid movement, frame, model, moving images, still</p> | <p>3D, algorithm, binary image, CAD, compression, CPU, data, drag and drop, "Fetch, decode, execute", ID card, input, JPEG, memory, online</p>                                                                                   |

|  |                                                                |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                        |                                                                                                                                                                                                                            |                                                                                                                                                          |                                                                               |
|--|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
|  | privacy, rank, real, search engine, TASK, web crawler, website | programming, rhythm, tempo, timbre, tinker, tutorials, typing<br>(Sonic Pi version add in: buffer, format, live loops, rehearsal, repetition, sleep, Sonic Pi, soundtrack, spacing, typo)<br>(Scratch version add in: plan, repeat, scratch, soundtrack, spacing) | distance, hexadecimal, input, instructions, internet, Mars Rover, moon, numerical data, output, planet, radio signal, RAM, research, scientist, sequence, signal, simulation, space, subtraction, technology, transmit | instructions, laptop, load, loop, Micro:bit, outputs, pairing, pedometer, polling, predict, program, repetition, reset, sabotage, scoreboard, screen, systematic, tablet, tinkering, USB, variables, wifi, wireless, wires | image, storyboard, thaumatrope, zoetrope<br>(Option 1 add in: digital device, onion skinning, stop motion)<br>(Option 2 add in: effects, photos, script) | community, operating system, output, pixels, RAM, responsible, RGB, ROM, safe |
|--|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|

## Willow Class (Y6)

| Class/Year Group                        | Autumn 1                                                                                                                                                                                                                                                                                                                                           | Autumn 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Spring 1                                                                                                                                                                                                                                                                                                                        | Spring 2                                                                                                                                                                                                                                                                            | Summer 1                                                                                                                                                                                                                                                                                                                                                               | Summer 2                                    |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| <b>Year (2022-2023) Transition Year</b> |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                        |                                             |
| <b>Willow</b>                           | <b>Kapow Catch Up Unit 1</b>                                                                                                                                                                                                                                                                                                                       | <b>Computing systems and networks:<br/>Bletchley Park 1<br/>Y6</b>                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Computing systems and networks:<br/>Bletchley Park 2<br/>Y6</b>                                                                                                                                                                                                                                                              | <b>Catch up Unit 2</b>                                                                                                                                                                                                                                                              | <b>Programming:<br/>Introduction to Python<br/>Y6</b>                                                                                                                                                                                                                                                                                                                  | <b>Data handling:<br/>Big data 1<br/>Y6</b> |
| <b>Knowledge</b>                        |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                        |                                             |
|                                         | <p>To understand what a network is and understand our school network.</p> <p>To understand how the Internet works and explain a website's journey</p> <p>To understand what a search engine is and how to use it</p> <p>To know that not everything on line is true.</p> <p>To understand that computational thinking is made of four strands.</p> | <p>To understand the importance of having a secure password and what "brute force hacking" is.</p> <p>To know that the first computers were created at Bletchley Park to crack the Enigma code to help the war effort in World War 2</p> <p>To know about some of historical figures that contributed to technological advances in computing</p> <p>To understand what techniques are required to create a presentation using appropriate software.</p>                                            | <p>To explore programming websites (Scratch).</p> <p>To use repetition (loops) in a program.</p> <p>To program animation.</p> <p>To program a story</p> <p>To understand a variable and how to make one.</p>                                                                                                                    | <p>To know that there are text-based programming languages such as Logo and Python.</p> <p>To know that nested loops are loops inside of loops</p> <p>To understand the use of random numbers and remix Python code.</p>                                                            | <p>To know that data contained within barcodes and QR codes can be used by computers</p> <p>To know that infrared waves are a way of transmitting data</p> <p>To know that Radio Frequency Identification (RFID) is a more private way of transmitting data</p> <p>To know that data is often encrypted so that even if it is stolen it is not useful to the thief</p> |                                             |
| <b>Skills</b>                           |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                        |                                             |
| <b>Computer Science</b>                 | <p>Explain the purpose of a network.</p> <p>Name and explain the key parts of a network.</p> <p>Identify components and how they are connected.</p> <p>Explain whether components are wireless or wired.</p> <p>Computers are connected to the internet via a router.</p> <p>Computational thinking can solve problems using it's</p>              | <p>Learning about the history of computers and how they have evolved over time</p> <p>Using past experiences to help solve new problems.</p> <p>Writing increasingly complex algorithms for a purpose.</p> <p>Debugging quickly and effectively to make a program more efficient.</p> <p>Remixing existing code to explore a problem.</p> <p>Changing a program to personalise it.</p> <p>Evaluating code to understand its purpose</p> <p>Predicting code and adapting it to a chosen purpose</p> | <p>Explain that Scratch is a coding application.</p> <p>Predict what different codes can do and be able to explain to others.</p> <p>To explain looping (repetition), recognise when it is used.</p> <p>To choose appropriate loops.</p> <p>Decompose projects.</p> <p>Plan programs and select blocks to deliver the plan.</p> | <p>Decomposing a program into an algorithm.</p> <p>Writing increasingly complex algorithms for a purpose.</p> <p>Debugging quickly and effectively to make a program more efficient.</p> <p>Remixing existing code to explore a problem.</p> <p>Using and adapting nested loops</p> | <p>Understanding and identifying barcodes, QR codes and RFID.</p> <p>Identifying devices and applications that can scan or read barcodes, QR codes and RFID</p>                                                                                                                                                                                                        |                                             |

|                               |                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                    |                                                                                                                                             |                                                                                                                                                                                                                                                                 |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                               | four strands – decomposition, pattern recognition, abstraction, algorithm.                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                               | <p>Select appropriate blocks.</p> <p>Extend existing code.</p> <p>Debug code.</p> <p>To explain what a variable is.</p> <p>To create variables</p>                                 | <p>Programming using the language Python.</p> <p>Changing a program to personalise it.</p> <p>Evaluating code to understand its purpose</p> |                                                                                                                                                                                                                                                                 |
| <b>Information Technology</b> | <p>To explain what the internet is.</p> <p>A website is just a group of files saved on a computer.</p> <p>Computers have to locate websites.</p> <p>The use of search engines, how to use them to navigate the web.</p>                                                       | <p>Understanding the importance of secure passwords and how to create them.</p> <p>Using search engines safely and effectively</p>                                                                                                                                                                            | To create and store answers to a question as a variable                                                                                                                            | Using logical thinking to explore software independently, iterating ideas and testing continuously                                          | <p>Understanding how barcodes, QR codes and RFID work.</p> <p>Gathering and analysing data in real time</p> <p>Creating formulas and sorting data within spreadsheets.</p> <p>Learning how 'big data' can be used to solve a problem or improve efficiency.</p> |
| <b>Digital Literacy</b>       | <p>How to use specific keywords to help search</p> <p>How to tell if a website is a reliable source of information.</p> <p>How to check website validity</p>                                                                                                                  |                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                    |                                                                                                                                             |                                                                                                                                                                                                                                                                 |
| <b>Vocabulary</b>             |                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                    |                                                                                                                                             |                                                                                                                                                                                                                                                                 |
| <b>Vocabulary</b>             | Network, wired, wireless, WiFi, device, Internet, component, laptop, tablet, desktop, Printer, photocopier, server, network switch, wireless access points, network map, router, real, fake, deceive, information, correct, incorrect, computational thinking, decomposition, | acrostic code, brute force hacking, caesar cipher, chip and pin system, cipher, code, combination, contribute, convince, date shift cipher, discovery, hero, invention, Nth Letter Cipher, password, Pig Latin, Pigpen cipher, present, scrambled, secret, secure, technological advancement, trial and error | Tinkering, programming, coding, code, application, interface, sprite, review, predict, animation, decompose, coding blocks, remixing code, debug, variables, conditional statement | algorithm, code, command, design, import, indentation, input, instructions, loop, output, patterns, random, remix, repeat, shape            | algorithms, barcode, binary, Boolean, brand, chips, commuter, contactless, data, encrypted, infrared, MagicBand, privacy, proximity, QR code, QR scanner, radio waves, RFID, signal, systems/data analyst, transmission, wireless                               |



|  |                               |  |  |  |  |
|--|-------------------------------|--|--|--|--|
|  | abstraction, algorithm, code. |  |  |  |  |
|--|-------------------------------|--|--|--|--|

| Class/Year Group    | Autumn 1                                                                                                                                                                                                                                                                                                                                                                                                                                                | Autumn 2                                                                                                                                                                                                                                     | Spring 1                                                                                                                                                                                                                                                                                                                                                               | Spring 2                                                                                                                                                                                                                                                         | Summer 1                                                                                                                                                                                                                                                                   | Summer 2                                                                                                                                                                                                                                                                            |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year (2023 onwards) |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                     |
| Willow              | Computing systems and networks:<br>Bletchley Park                                                                                                                                                                                                                                                                                                                                                                                                       | Programming:<br>Introduction to Python                                                                                                                                                                                                       | Data handling:<br>Big data 1                                                                                                                                                                                                                                                                                                                                           | Creating media:<br>History of computers                                                                                                                                                                                                                          | Data handling:<br>Big data 2                                                                                                                                                                                                                                               | Skills showcase:<br>Inventing a product                                                                                                                                                                                                                                             |
| Knowledge           |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                     |
|                     | <p>To understand the importance of having a secure password and what "brute force hacking" is.</p> <p>To know that the first computers were created at Bletchley Park to crack the Enigma code to help the war effort in World War 2</p> <p>To know about some of historical figures that contributed to technological advances in computing</p> <p>To understand what techniques are required to create a presentation using appropriate software.</p> | <p>To know that there are text-based programming languages such as Logo and Python.</p> <p>To know that nested loops are loops inside of loops</p> <p>To understand the use of random numbers and remix Python code.</p>                     | <p>To know that data contained within barcodes and QR codes can be used by computers</p> <p>To know that infrared waves are a way of transmitting data</p> <p>To know that Radio Frequency Identification (RFID) is a more private way of transmitting data</p> <p>To know that data is often encrypted so that even if it is stolen it is not useful to the thief</p> | <p>To know that radio plays are plays where the audience can only hear the action so sound effects are important.</p> <p>To know that sound clips can be recorded using sound recording software.</p> <p>To know that sound clips can be edited and trimmed.</p> | <p>To know that data can become corrupted within a network but this is less likely to happen if it is sent in 'packets'</p> <p>I know that devices or that are not updated are most vulnerable to hackers.</p> <p>To know the difference between mobile data and WiFi.</p> | <p>To know what designing an electronic product involves.</p> <p>To know which programming software/ language is best to achieve a purpose.</p> <p>To know the building blocks of computational thinking e.g. sequence, selection, repetition, variables and inputs and outputs</p> |
| Skills              |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                     |
| Computer Science    | <p>Learning about the history of computers and how they have evolved over time</p> <p>Using past experiences to help solve new problems.</p> <p>Writing increasingly complex algorithms for a purpose.</p> <p>Debugging quickly and effectively to make a program more efficient.</p>                                                                                                                                                                   | <p>Decomposing a program into an algorithm.</p> <p>Writing increasingly complex algorithms for a purpose.</p> <p>Debugging quickly and effectively to make a program more efficient.</p> <p>Remixing existing code to explore a problem.</p> | <p>Understanding and identifying barcodes, QR codes and RFID.</p> <p>Identifying devices and applications that can scan or read barcodes, QR codes and RFID</p>                                                                                                                                                                                                        | <p>Learning about the history of computers and how they have evolved over time</p> <p>Using the understanding of historic computers to design a computer of the future.</p>                                                                                      | <p>Understanding how corruption can happen within data during transfer (for example when downloading, installing, copying and updating files).</p> <p>Understanding that computer networks provide multiple services.</p>                                                  | <p>Using past experiences to help solve new problems.</p> <p>Writing increasingly complex algorithms for a purpose.</p> <p>Debugging quickly and effectively to make a program more efficient.</p> <p>Remixing existing code to explore a problem.</p>                              |

|                               |                                                                                                                                                                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                               | <p>Remixing existing code to explore a problem.</p> <p>Changing a program to personalise it.</p> <p>Evaluating code to understand its purpose</p> <p>Predicting code and adapting it to a chosen purpose</p> | <p>Using and adapting nested loops</p> <p>Programming using the language Python.</p> <p>Changing a program to personalise it.</p> <p>Evaluating code to understand its purpose</p> |                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                            | <p>Changing a program to personalise it.</p> <p>Evaluating code to understand its purpose</p> <p>Predicting code and adapting it to a chosen purpose</p>                                                                                                                                                                                                                                         |
| <b>Information Technology</b> | <p>Using search and word processing skills to create a presentation.</p>                                                                                                                                     | <p>Using logical thinking to explore software independently, iterating ideas and testing continuously</p>                                                                          | <p>Understanding how barcodes, QR codes and RFID work.</p> <p>Gathering and analysing data in real time</p> <p>Creating formulas and sorting data within spreadsheets.</p> <p>Learning how 'big data' can be used to solve a problem or improve efficiency.</p> | <p>Using search and word processing skills to create a presentation.</p> <p>Planning, recording and editing a radio play</p> <p>Creating and editing sound recordings for a specific purpose.</p> | <p>Using search and word processing skills to create a presentation.</p> <p>Creating formulas and sorting data within spreadsheets.</p> <p>Learning about the Internet of Things and how it has led to 'big data'</p> <p>Learning how 'big data' can be used to solve a problem or improve efficiency.</p> | <p>Using logical thinking to explore software independently, iterating ideas and testing continuously</p> <p>Creating and editing videos, adding multiple elements: music, voiceover, sound, text and transitions.</p> <p>Using design software TinkerCAD to design a product</p> <p>Creating a website with embedded links and multiple pages</p> <p>Understanding how search engines work.</p> |
| <b>Digital Literacy</b>       | <p>Understanding the importance of secure passwords and how to create them.</p> <p>Using search engines safely and effectively</p>                                                                           |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                            | <p>Using search engines safely and effectively</p>                                                                                                                                                                                                                                                                                                                                               |
| <b>Vocabulary</b>             |                                                                                                                                                                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Vocabulary</b>             | acrostic code, brute force hacking, caesar cipher, chip and pin system, cipher, code, combination, contribute, convince, date                                                                                | algorithm, code, command, design, import, indentation, input, instructions, loop, output, patterns, random, remix, repeat, shape                                                   | algorithms, barcode, binary, Boolean, brand, chips, commuter, contactless, data, encrypted, infrared,                                                                                                                                                           | background noise, byte, computer, devices, file, FX, gigabyte, graphics, hard drive, hardware, kilobytes, megabyte, memory                                                                        | Big Data, bluetooth, corrupted, data, energy, GPS, improve, infrared, Internet of Things, personal, privacy, QR                                                                                                                                                                                            | adapt, advert, algorithm, bugs, coding, debugging, design, edit, electronic, evaluate, facts, image rights, images, influence,                                                                                                                                                                                                                                                                   |

|  |                                                                                                                                                                                 |  |                                                                                                                             |                                                                                                                                                                                                              |                                                                                                         |                                                                                                                                                                                                             |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | shift cipher, discovery, hero, invention, Nth Letter Cipher, password, Pig Latin, Pigpen cipher, present, scrambled, secret, secure, technological advancement, trial and error |  | MagicBand, privacy, proximity, QR code, QR scanner, radio waves, RFID, signal, systems/data analyst, transmission, wireless | storage, mouse, operating system, overlay, play, processor, radio play, RAM, Raspberry Pi, record, reverb, ROM, script, smartphone, sound, sound effects, terrabytes, touch screen, track, trackpad, trailer | codes, revolution, RFID, SIM, simulation, Smart city, Smart school, stop motion, threat, wifi, wireless | information, inputs, loops, manipulation, opinions, output, photos, product, program, repetition, screenshot, search engine, selection, sequence, snippets, software, structures, variables, video, website |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Online safety

As part of celebrating Safer Internet Day, each class will have a day that week where they focus on online safety.

|                                | Y3                                                                                                                                                                                                                                                                                                                                                                                            | Y4                                                                                                                                                                                                                                                                                                                                                                                                                                                | Y5                                                                                                                                                                                                                                                                                                                                                                                                                                              | Y6                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Knowledge</b>               | <p>To know that not everything on the internet is true: people share facts, beliefs and opinions online.</p> <p>To understand that the internet can affect your moods and feelings.</p> <p>To know that privacy settings limit who can access your important personal information such as your name, age, gender etc</p> <p>To know what social media is and that age restrictions apply.</p> | <p>To understand some of the methods used to encourage people to buy things online</p> <p>To understand that technology can be designed to act like or impersonate living things.</p> <p>To understand that technology can be a distraction and identify when someone might need to limit the amount of time spent using technology.</p> <p>To understand what behaviours are appropriate in order to stay safe and be respectful online</p>      | <p>To know different ways we can communicate online</p> <p>To understand how online information can be used to form judgements</p> <p>To understand some ways to deal with online bullying</p> <p>To know that apps require permission to access private information and that you can alter the permissions.</p> <p>To know where I can go for support if I am being bullied online or feel that my health is being affected by time online</p> | <p>To know that a digital footprint means the information that exists on the internet as a result of a person's online activity</p> <p>To know what steps are required to capture bullying content as evidence</p> <p>To understand that it is important to manage personal passwords effectively.</p> <p>To understand what it means to have a positive online reputation</p> <p>To know some common online scams</p> |
| <b>Digital literacy skills</b> | <p>Recognising how social media platforms are used to interact.</p> <p>Recognising that different information is shared online including facts, beliefs and opinions</p> <p>Learning how to identify reliable information when searching online.</p> <p>Learning how to stay safe on social media</p> <p>Considering the impact technology can have on mood.</p>                              | <p>Understanding that information found by searching the internet is not all grounded in fact</p> <p>Learning to make judgements about the accuracy of online searches</p> <p>Identifying forms of advertising online.</p> <p>Reflecting on the positives and negatives of time online</p> <p>Identifying respectful and disrespectful online behaviour.</p> <p>Recognising that information on the Internet might not be true or correct and</p> | <p>Identifying possible dangers online and learning how to stay safe.</p> <p>Evaluating the pros and cons of online communication</p> <p>Recognising that information on the Internet might not be true or correct and learning ways of checking validity</p> <p>Learning what to do if they experience bullying online</p> <p>Learning to use an online community safely.</p>                                                                  | <p>Learning about the positive and negative impacts of sharing online.</p> <p>Learning strategies to create a positive online reputation.</p> <p>Learning strategies to capture evidence of online bullying in order to seek help.</p> <p>Recognising that updated software can help to prevent data corruption and hacking</p>                                                                                        |

|                   |                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   |                                                                                                                                                                                                                                                                                                           | that some sources are more trustworthy than others                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Vocabulary</b> | accurate, age restricted, autocomplete, beliefs, block, content, digital devices, fact, fake news, internet, opinion, password, persuasive, privacy settings, reliable, report, requests, search engine, security questions, sharing, smart devices, social media platforms, social networking, wellbeing | accuracy, advantages, advertisements, belief, bot, chatbot, computer, distractions, fact, hashtag, implications, in-app purchases, influencer, opinion, program, recommendations, reliable, risks, screen time, search results, snippets, sponsored, trustworthy | accurate information, advice, app permissions, application, apps, bullying, communication, emojis, health, in-app purchases, information, judgement, memes, mental health, mindfulness, mini-biography, online communication, opinion, organisation, password, personal information, positive contributions, private information, real world, strong password, summarise, support, technology, trusted adult, wellbeing | anonymity, antivirus, biometrics, block and report, consent, copy, digital footprint, digital personality, financial information, hacking, inappropriate, malware, online bullying, online reputation, password, paste, personal information, personality, phishing, privacy settings, private, reliable source, report, reputation, respect, scammers, screengrab, secure, settings, software updates, two factor authentication, URL, username |

### Notes

Please note that skills and knowledge are taken from the Kapow scheme of computing and are copyrighted by them. This may not be reproduced without the permission of Kapow or Woodchester Endowed Church of England Primary School.