



## Computing Progression Map

This progression map outlines how pupils develop both **substantive knowledge** and **disciplinary knowledge** in Computing from Nursery through to the end of Key Stage 2. It ensures that learning is carefully sequenced, cumulative, and progressive, so that pupils build secure foundations in computing and develop the knowledge, skills and confidence to use digital technology safely, creatively and purposefully.

In the Early Years Foundation Stage, computing is embedded through play-based learning and adult-guided activities, primarily within the areas of Understanding the World and Expressive Arts and Design. Children explore technology, create digital content and give simple instructions through play and adult-guided activities, providing strong foundations for future learning.

From Years 1 to 6, Computing is taught as a discrete subject using the Teach Computing curriculum, developed by the National Centre for Computing Education. Components are selected and sequenced from the Teach Computing curriculum to ensure clear progression across the three core strands of our computing curriculum: Computing Systems and Networks, Creating Media, and Programming. Together, these provide full coverage of the National Curriculum for Computing.

To ensure depth of learning and sufficient curriculum time, Ordsall Primary School teaches three carefully selected Teach Computing components in each year group, comprising one component from each of the three curriculum threads. One component is taught each term. Together, these components provide full coverage of the National Curriculum for Computing while allowing pupils to develop secure knowledge and skills before progressing to increasingly complex concepts.

At Ordsall, we define knowledge in Computing as follows:

**Substantive knowledge:** The facts, concepts and vocabulary pupils are taught and expected to remember in computing, including:

- Computers and digital devices
- Networks and the internet
- Algorithms, programs, variables and loops
- Media types, tools and copyright
- Online safety and responsible use

**Disciplinary knowledge:** An understanding of how computing works and how computer scientists think including:

- Designing, writing and debugging algorithms and programs
- Using logical reasoning to predict and explain outcomes
- Creating, testing and refining digital content and programs
- Evaluating digital systems and content
- Applying safe, responsible and ethical behaviours online

### Threads

In Computing, key threads run throughout the curriculum, providing continuity and coherence as pupils move through each year group. These recurring strands help pupils make connections between components of learning, revisit and embed prior learning, and deepen their understanding of computing concepts. We have identified the following core threads within our Computing curriculum:

**Computing Systems and Networks:** Understanding what computers are, how they work, how they connect and how information is shared safely and responsibly.

**Creating Media:** Using digital tools to create, edit and evaluate media such as images, audio, video and webpages for different purposes.

**Programming:** Designing, writing, testing and debugging programs to solve problems using algorithms, repetition, selection and variables.



## Disciplinary Knowledge

Across all components, pupils are supported to develop the following disciplinary approaches:

|                                                |                                                                                                                      |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>Understanding Digital Systems</b>           | Recognising how hardware, software and networks work together and how digital systems are used in the wider world.   |
| <b>Algorithmic Thinking</b>                    | Breaking problems down into steps, creating algorithms, predicting outcomes and refining solutions.                  |
| <b>Programming and Debugging</b>               | Creating programs, identifying errors, testing solutions and improving efficiency and accuracy.                      |
| <b>Creating and Evaluating Digital Content</b> | Creating, editing and improving digital content for different purposes and audiences using a range of digital tools. |
| <b>Using Technology Safely and Responsibly</b> | Evaluating digital content and systems, considering audience and purpose, and applying online safety principles.     |

## Progression Model (Teach Computing)

Computing at Ordsall follows the Teach Computing progression model, ensuring that learning increases in complexity, independence and abstraction as pupils move through school.

- **Early Years** – exploring technology through play, curiosity and real-world experiences.
- **Key Stage 1** – building foundational understanding of technology, algorithms and digital creativity.
- **Lower Key Stage 2** – developing structured programming, computer networks and increasingly sophisticated digital media.
- **Upper Key Stage 2** – applying computing concepts independently, including variables, physical computing, web technologies and collaborative systems.

Knowledge is deliberately revisited so pupils can connect new learning to prior understanding.

## Coverage Map

| Thread                                | Nursery                                                                                                                            | Reception                                                                                                                                                    | Year 1                                                                                                                                              | Year 2                                                                                                                                      | Year 3                                                                                                                                                  | Year 4                                                                                                                                                 | Year 5                                                                                                                         | Year 6                                                                                                                                 |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Computing Systems and Networks</b> | <b>Technology in Our World</b><br>Exploring everyday technology and learning that digital devices are used by adults and children. | <b>Using Technology Purposefully</b><br>Using digital devices to support learning, and beginning to understand how to use technology safely and responsibly. | <b>Technology Around Us</b><br>Recognising technology in school, identifying the main parts of a computer and using technology responsibly.         | <b>Information Technology Around Us</b><br>Identifying IT and how its responsible use improves our world in school and beyond.              | <b>Connecting Computers</b><br>Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks. | <b>The Internet</b><br>Recognising that the internet is a network of networks including the world wide web, and why we should evaluate online content. | <b>Systems and Searching</b><br>Recognising IT systems in the world and how some can enable searching on the internet.         | <b>Communication and Collaboration</b><br>Exploring how data is transferred by working collaboratively online.                         |
| <b>Creating Media</b>                 | <b>Digital Mark-Making</b><br>Exploring simple digital tools to make marks, images or sounds.                                      | <b>Creating Digital Content</b><br>Using digital tools to draw, take photographs and make simple recordings to represent ideas and learning.                 | <b>Digital Writing</b><br>Using a computer to create, edit and improve digital text by making purposeful choices about formatting and presentation. | <b>Digital Photography</b><br>Capturing, editing and evaluating photographs while making purposeful choices about composition and audience. | <b>Stop-frame Animation</b><br>Planning, creating and improving animations by sequencing images to tell a story.                                        | <b>Audio Production</b><br>Recording, editing and evaluating audio to create purposeful digital content for an audience.                               | <b>Video Production</b><br>Planning, recording, editing and evaluating videos using a range of filming and editing techniques. | <b>Webpage Creation</b><br>Designing, creating and evaluating websites that communicate information effectively for a chosen audience. |



| Thread      | Nursery                                                                                                          | Reception                                                                                                                                                                                    | Year 1                                                                                                                   | Year 2                                                                                                                    | Year 3                                                                                                                                                | Year 4                                                                                                     | Year 5                                                                                                                              | Year 6                                                                                                                            |
|-------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Programming | <b>Giving Instructions</b><br>Giving simple instructions to people or toys and exploring sequences through play. | <b>Sequencing and Predicting</b><br>Creating simple sequences of instructions, predicting outcomes and making changes when things do not work, including adult-led use of programmable toys. | <b>Moving a Robot</b><br>Creating and debugging simple algorithms to control floor robots through sequences of commands. | <b>Robot Algorithms</b><br>Designing, testing and debugging algorithms to solve problems using programmable floor robots. | <b>Events and Actions in Programs</b><br>Creating programs using events, sequences and actions, and understanding how programs respond to user input. | <b>Repetition in Games</b><br>Using repetition (loops) to create efficient programs and interactive games. | <b>Selection in Physical Computing</b><br>Using conditions and selection to control physical devices and solve real-world problems. | <b>Variables in Games</b><br>Using variables to create increasingly complex programs, designing and evaluating interactive games. |

## Learning by Year Group

| Nursery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| To be able to (TBAT)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Success Criteria<br>(statements taken from the Early Years progression document)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Explore everyday technology in familiar environments.<br>Recognise that technology helps us in our daily lives.<br>Identify a range of digital devices used by adults and children.<br>Begin to use technology safely with adult support.<br>Explore digital tools to make marks, pictures and sounds.<br>Use simple drawing, painting and mark-making apps.<br>Experiment with taking photographs and making recordings.<br>Talk about what has been created.<br>Give and follow simple instructions through play.<br>Explore sequences of instructions.<br>Recognise that instructions must be followed in order.<br>Begin to predict what will happen next. | I explore how things work.<br>I can talk about what I see, using a wide vocabulary.<br>I can select and use activities and resources, with help when needed.<br>I can explore different materials freely, in order to develop my ideas about how to use them and what to make.<br>I can develop my own ideas and then decide which materials to use to express them.<br>I can use drawing to represent ideas like movement or loud noises.<br>I can draw with increasing complexity and detail, such as representing a face with a circle and including details. |
| Disciplinary Vocabulary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Substantive Vocabulary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Explore – To look at, try out and find out how something works.<br>Use – To work with a device, tool or program to complete a task.<br>Choose – To decide which option is best.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | technology, device, picture, photograph, sound, music                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Reception                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| To be able to (TBAT)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Success Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Use digital devices to support learning and play.<br>Identify simple parts of a computer or tablet.<br>Use technology independently for a purpose.<br>Begin to understand how to use technology safely and responsibly.<br>Use digital tools to create drawings, photographs and simple recordings.<br>Select appropriate tools to represent ideas.<br>Save and revisit digital creations.<br>Share and talk about finished digital work.<br>Create simple sequences of instructions.<br>Predict what a sequence of instructions will do.<br>Spot when something has gone wrong and make changes.<br>Use programmable toys with adult guidance. | I can select and use activities and resources to achieve a goal.<br>I explore how things work. I can talk about what I see using a wide vocabulary.<br>I can confidently and safely use a range of resources independently.<br>I know and talk about sensible amounts of screen time. I can explain reasons for rules and behave accordingly.<br>I can safely use and explore a variety of materials, tools and techniques.<br>I can share my creations, explaining the process I have used.<br>I can invent, adapt and recount narratives and stories.<br>I can develop my own ideas and decide which materials to use to express them.<br>I can follow instructions involving several ideas or actions.<br>I can offer explanations for why things might happen. |
| Disciplinary Vocabulary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Substantive Vocabulary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Identify – To spot and name something.<br>Create – To make something new.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | technology, computer, digital, photograph, record, instruction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |



| Year I                                                                                                                                    |                                                                                                                                                                                                     |
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| Computing systems and networks – Technology around us                                                                                     |                                                                                                                                                                                                     |
| To be able to (TBAT)                                                                                                                      | Success Criteria                                                                                                                                                                                    |
| To identify technology                                                                                                                    | I can explain how these technology examples help us<br>I can explain technology as something that helps us<br>I can locate examples of technology in the classroom                                  |
| To identify a computer and its main parts                                                                                                 | I can name the main parts of a computer<br>I can switch on and log into a computer<br>I can use a mouse to click and drag                                                                           |
| To use a mouse in different ways                                                                                                          | I can click and drag to make objects on a screen<br>I can use a mouse to create a picture<br>I can use a mouse to open a program                                                                    |
| To use a keyboard to type on a computer                                                                                                   | I can save my work to a file<br>I can say what a keyboard is for<br>I can type my name on a computer                                                                                                |
| To use the keyboard to edit text                                                                                                          | I can delete letters<br>I can open my work from a file<br>I can use the arrow keys to move the cursor                                                                                               |
| To create rules for using technology responsibly                                                                                          | I can discuss how we benefit from these rules<br>I can give examples of some of these rules<br>I can identify rules to keep us safe and healthy when we are using technology in and beyond the home |
| Disciplinary Vocabulary                                                                                                                   | Substantive Vocabulary                                                                                                                                                                              |
| Create – To make something new.                                                                                                           | computer, keyboard, mouse, screen, technology                                                                                                                                                       |
| Creating media – Digital writing                                                                                                          |                                                                                                                                                                                                     |
| To be able to (TBAT)                                                                                                                      | Success Criteria                                                                                                                                                                                    |
| To use a computer to write                                                                                                                | I can identify and find keys on a keyboard<br>I can open a word processor<br>I can recognise keys on a keyboard                                                                                     |
| To add and remove text on a computer                                                                                                      | I can enter text into a computer<br>I can use backspace to remove text<br>I can use letter, number, and space keys                                                                                  |
| To identify that the look of text can be changed on a computer                                                                            | I can explain what the keys that I have learnt about already do<br>I can identify the toolbar and use bold, italic, and underline<br>I can type capital letters                                     |
| To make careful choices when changing text                                                                                                | I can change the font<br>I can select all of the text by clicking and dragging<br>I can select a word by double-clicking                                                                            |
| To explain why I used the tools that I chose                                                                                              | I can decide if my changes have improved my writing<br>I can say what tool I used to change the text<br>I can use 'undo' to remove changes                                                          |
| To compare typing on a computer to writing on paper                                                                                       | I can explain the differences between typing and writing<br>I can make changes to text on a computer<br>I can say why I prefer typing or writing                                                    |
| Disciplinary Vocabulary                                                                                                                   | Substantive Vocabulary                                                                                                                                                                              |
| Compare – To say how things are the same and different.<br>Select – To choose something for a purpose.<br>Create – To make something new. | format, text, font                                                                                                                                                                                  |
| Programming – Moving a robot                                                                                                              |                                                                                                                                                                                                     |
| To be able to (TBAT)                                                                                                                      | Success Criteria                                                                                                                                                                                    |
| To explain what a given command will do                                                                                                   | I can match a command to an outcome<br>I can predict the outcome of a command on a device<br>I can run a command on a device                                                                        |
| To act out a given word                                                                                                                   | I can follow an instruction<br>I can give directions<br>I can recall words that can be acted out                                                                                                    |
| To combine forwards and backwards commands to make a sequence                                                                             | I can compare forwards and backwards movements<br>I can predict the outcome of a sequence involving forwards and backwards commands<br>I can start a sequence from the same place                   |
| To combine four direction commands to make sequences                                                                                      | I can compare left and right turns<br>I can experiment with turn and move commands to move a robot<br>I can predict the outcome of a sequence involving up to four commands                         |



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| To plan a simple program                                                                                                                  | I can choose the order of commands in a sequence<br>I can debug my program<br>I can explain what my program should do             |
| To find more than one solution to a problem                                                                                               | I can identify several possible solutions<br>I can plan two programs<br>I can use two different programs to get to the same place |
| <b>Disciplinary Vocabulary</b>                                                                                                            | <b>Substantive Vocabulary</b>                                                                                                     |
| Compare – To say how things are the same and different.<br>Select – To choose something for a purpose.<br>Create – To make something new. | command, instruction, algorithm, program, route                                                                                   |



## Year 2

### Computing systems and networks – IT around us

| To be able to (TBAT)                                                 | Success Criteria                                                                                                                                             |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| To recognise the uses and features of information technology         | I can describe some uses of computers<br>I can identify examples of computers<br>I can identify that a computer is a part of IT                              |
| To identify the uses of information technology in the school         | I can identify examples of IT<br>I can identify that some IT can be used in more than one way<br>I can sort school IT by what it's used for                  |
| To identify information technology beyond school                     | I can find examples of information technology<br>I can sort IT by where it is found<br>I can talk about uses of information technology                       |
| To explain how information technology helps us                       | I can demonstrate how IT devices work together<br>I can recognise common types of technology<br>I can say why we use IT                                      |
| To explain how to use information technology safely                  | I can list different uses of information technology<br>I can say how rules can help keep me safe<br>I can talk about different rules for using IT            |
| To recognise that choices are made when using information technology | I can explain the need to use IT in different ways<br>I can identify the choices that I make when using IT<br>I can use IT for different types of activities |

#### Disciplinary Vocabulary

Identify – To spot and name something.  
Explain – To tell someone how or why something happens.

#### Substantive Vocabulary

information technology (IT), device, barcode, scanner

### Creating media – Digital photography

| To be able to (TBAT)                         | Success Criteria                                                                                                                                                                           |
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| To use a digital device to take a photograph | I can explain what I did to capture a digital photo<br>I can recognise what devices can be used to take photographs<br>I can talk about how to take a photograph                           |
| To make choices when taking a photograph     | I can explain the process of taking a good photograph<br>I can explain why a photo looks better in portrait or landscape format<br>I can take photos in both landscape and portrait format |
| To describe what makes a good photograph     | I can discuss how to take a good photograph<br>I can identify what is wrong with a photograph<br>I can improve a photograph by retaking it                                                 |
| To decide how photographs can be improved    | I can experiment with different light sources<br>I can explain why a picture may be unclear<br>I can explore the effect that light has on a photo                                          |
| To use tools to change an image              | I can explain my choices<br>I can recognise that images can be changed<br>I can use a tool to achieve a desired effect                                                                     |
| To recognise that photos can be changed      | I can apply a range of photography skills to capture a photo<br>I can identify which photos are real and which have been changed<br>I can recognise which photos have been changed         |

#### Disciplinary Vocabulary

Identify – To spot and name something.  
Create – To make something new.  
Explain – To tell someone how or why something happens.

#### Substantive Vocabulary

photograph, camera, edit

### Programming – Robot algorithms

| To be able to (TBAT)                                             | Success Criteria                                                                                                                                                                                                                 |
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| To describe a series of instructions as a sequence               | I can choose a series of words that can be enacted as a sequence<br>I can follow instructions given by someone else<br>I can give clear instructions                                                                             |
| To explain what happens when we change the order of instructions | I can show the difference in outcomes between two sequences that consist of the same commands<br>I can use an algorithm to program a sequence on a floor robot<br>I can use the same instructions to create different algorithms |
| To use logical reasoning to predict the outcome of a program     | I can compare my prediction to the program outcome<br>I can follow a sequence<br>I can predict the outcome of a sequence                                                                                                         |
| To explain that programming projects can have code and artwork   | I can explain the choices I made for my mat design<br>I can identify different routes around my mat<br>I can test my mat to make sure that it is usable                                                                          |



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| To design an algorithm                                                                                                                                                                                                                                 | I can create an algorithm to meet my goal<br>I can explain what my algorithm should achieve<br>I can use my algorithm to create a program                    |
| To create and debug a program that I have written                                                                                                                                                                                                      | I can plan algorithms for different parts of a task<br>I can put together the different parts of my program<br>I can test and debug each part of the program |
| <b>Disciplinary Vocabulary</b>                                                                                                                                                                                                                         | <b>Substantive Vocabulary</b>                                                                                                                                |
| Identify – To spot and name something.<br>Create – To make something new.<br>Predict – To make a sensible guess about what might happen.<br>Test – To try something out to see if it works.<br>Explain – To tell someone how or why something happens. | sequence, algorithm, debug, code                                                                                                                             |



| Year 3                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                       |
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| Computing systems and networks – Connecting computers                                                                                                                                                                                       |                                                                                                                                                                                                                                       |
| To be able to (TBAT)                                                                                                                                                                                                                        | Success Criteria                                                                                                                                                                                                                      |
| To explain how digital devices function                                                                                                                                                                                                     | I can explain that digital devices accept inputs<br>I can explain that digital devices produce outputs<br>I can follow a process                                                                                                      |
| To identify input and output devices                                                                                                                                                                                                        | I can classify input and output devices<br>I can describe a simple process<br>I can design a digital device                                                                                                                           |
| To recognise how digital devices can change the way we work                                                                                                                                                                                 | I can explain how I use digital devices for different activities<br>I can recognise similarities between using digital devices and non-digital tools<br>I can suggest differences between using digital devices and non-digital tools |
| To explain how a computer network can be used to share information                                                                                                                                                                          | I can discuss why we need a network switch<br>I can explain how messages are passed through multiple connections<br>I can recognise different connections                                                                             |
| To explore how digital devices can be connected                                                                                                                                                                                             | I can demonstrate how information can be passed between devices<br>I can explain the role of a switch, server, and wireless access point in a network<br>I can recognise that a computer network is made up of a number of devices    |
| To recognise the physical components of a network                                                                                                                                                                                           | I can identify how devices in a network are connected together<br>I can identify networked devices around me<br>I can identify the benefits of computer networks                                                                      |
| Disciplinary Vocabulary                                                                                                                                                                                                                     | Substantive Vocabulary                                                                                                                                                                                                                |
| Identify – To spot and name something.<br>Explain – To tell someone how or why something happens.<br>Design – To plan what something will look like or how it will work.                                                                    | input, process, output, network, connection                                                                                                                                                                                           |
| Creating media - Stop-frame animation                                                                                                                                                                                                       |                                                                                                                                                                                                                                       |
| To be able to (TBAT)                                                                                                                                                                                                                        | Success Criteria                                                                                                                                                                                                                      |
| To explain that animation is a sequence of drawings or photographs                                                                                                                                                                          | I can create an effective flip book-style animation<br>I can draw a sequence of pictures<br>I can explain how an animation/flip book works                                                                                            |
| To relate animated movement with a sequence of images                                                                                                                                                                                       | I can create an effective stop-frame animation<br>I can explain why little changes are needed for each frame<br>I can predict what an animation will look like                                                                        |
| To plan an animation                                                                                                                                                                                                                        | I can break down a story into settings, characters and events<br>I can create a storyboard<br>I can describe an animation that is achievable on screen                                                                                |
| To identify the need to work consistently and carefully                                                                                                                                                                                     | I can evaluate the quality of my animation<br>I can review a sequence of frames to check my work<br>I can use onion skinning to help me make small changes between frames                                                             |
| To review and improve an animation                                                                                                                                                                                                          | I can evaluate another learner's animation<br>I can explain ways to make my animation better<br>I can improve my animation based on feedback                                                                                          |
| To evaluate the impact of adding other media to an animation                                                                                                                                                                                | I can add other media to my animation<br>I can evaluate my final film<br>I can explain why I added other media to my animation                                                                                                        |
| Disciplinary Vocabulary                                                                                                                                                                                                                     | Substantive Vocabulary                                                                                                                                                                                                                |
| Design – To plan what something will look like or how it will work.<br>Create – To make something new.<br>Evaluate – To think about what worked well and what could be improved.<br>Explain – To tell someone how or why something happens. | animation, frame                                                                                                                                                                                                                      |
| Programming – Events and actions in programs                                                                                                                                                                                                |                                                                                                                                                                                                                                       |
| To be able to (TBAT)                                                                                                                                                                                                                        | Success Criteria                                                                                                                                                                                                                      |
| To explain how a sprite moves in an existing project                                                                                                                                                                                        | I can choose which keys to use for actions and explain my choices<br>I can explain the relationship between an event and an action<br>I can identify a way to improve a program                                                       |
| To create a program to move a sprite in four directions                                                                                                                                                                                     | I can choose a character for my project<br>I can choose a suitable size for a character in a maze<br>I can program movement                                                                                                           |



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| To adapt a program to a new context                                                                                                                                                                                                                                                   | I can choose blocks to set up my program<br>I can consider the real world when making design choices<br>I can use a programming extension                                                     |
| To develop my program by adding features                                                                                                                                                                                                                                              | I can build more sequences of commands to make my design work<br>I can choose suitable keys to turn on additional features<br>I can identify additional features (from a given set of blocks) |
| To identify and fix bugs in a program                                                                                                                                                                                                                                                 | I can match a piece of code to an outcome<br>I can modify a program using a design<br>I can test a program against a given design                                                             |
| To design and create a maze-based challenge                                                                                                                                                                                                                                           | I can evaluate my project<br>I can implement my design<br>I can make design choices and justify them                                                                                          |
| <b>Disciplinary Vocabulary</b>                                                                                                                                                                                                                                                        | <b>Substantive Vocabulary</b>                                                                                                                                                                 |
| Identify – To spot and name something.<br>Explain – To tell someone how or why something happens.<br>Design – To plan what something will look like or how it will work.<br>Create – To make something new.<br>Evaluate – To think about what worked well and what could be improved. | event, sprite, block                                                                                                                                                                          |



| Year 4                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                            |
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| Computing systems and networks – The internet                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                            |
| To be able to (TBAT)                                                                                                                                                                                                                                                                                                                      | Success Criteria                                                                                                                                                                                                                           |
| To describe how networks physically connect to other networks                                                                                                                                                                                                                                                                             | I can demonstrate how information is shared across the internet<br>I can describe the internet as a network of networks<br>I can discuss why a network needs protecting                                                                    |
| To recognise how networked devices make up the internet                                                                                                                                                                                                                                                                                   | I can describe networked devices and how they connect<br>I can explain that the internet is used to provide many services<br>I can recognise that the World Wide Web contains websites and web pages                                       |
| To outline how websites can be shared via the World Wide Web (WWW)                                                                                                                                                                                                                                                                        | I can describe how to access websites on the WWW<br>I can describe where websites are stored when uploaded to the WWW<br>I can explain the types of media that can be shared on the WWW                                                    |
| To describe how content can be added and accessed on the World Wide Web (WWW)                                                                                                                                                                                                                                                             | I can explain that internet services can be used to create content online<br>I can explain what media can be found on websites<br>I can recognise that I can add content to the WWW                                                        |
| To recognise how the content of the WWW is created by people                                                                                                                                                                                                                                                                              | I can explain that there are rules to protect content<br>I can explain that websites and their content are created by people<br>I can suggest who owns the content on websites                                                             |
| To evaluate the consequences of unreliable content                                                                                                                                                                                                                                                                                        | I can explain that not everything on the World Wide Web is true<br>I can explain why I need to think carefully before I share or reshare content<br>I can explain why some information I find online may not be honest, accurate, or legal |
| Disciplinary Vocabulary                                                                                                                                                                                                                                                                                                                   | Substantive Vocabulary                                                                                                                                                                                                                     |
| Explain – To tell someone how or why something happens.<br>Analyse – To look carefully at information to find patterns or answers.<br>Evaluate – To think about what worked well and what could be improved.                                                                                                                              | internet, router, website, browser, web page                                                                                                                                                                                               |
| Creating media – Audio production                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                            |
| To be able to (TBAT)                                                                                                                                                                                                                                                                                                                      | Success Criteria                                                                                                                                                                                                                           |
| To identify that sound can be recorded                                                                                                                                                                                                                                                                                                    | I can explain that the person who records the sound can say who is allowed to use it<br>I can identify the input and output devices used to record and play sound<br>I can use a computer to record audio                                  |
| To explain that audio recordings can be edited                                                                                                                                                                                                                                                                                            | I can discuss what sounds can be added to a podcast<br>I can inspect the soundwave view to know where to trim my recording<br>I can re-record my voice to improve my recording                                                             |
| To recognise the different parts of creating a podcast project                                                                                                                                                                                                                                                                            | I can explain how sounds can be combined to make a podcast more engaging<br>I can plan appropriate content for a podcast<br>I can save my project so the different parts remain editable                                                   |
| To apply audio editing skills independently                                                                                                                                                                                                                                                                                               | I can improve my voice recordings<br>I can record content following my plan<br>I can review the quality of my recordings                                                                                                                   |
| To combine audio to enhance my podcast project                                                                                                                                                                                                                                                                                            | I can arrange multiple sounds to create the effect I want<br>I can explain the difference between saving a project and exporting an audio file<br>I can open my project to continue working on it                                          |
| To evaluate the effective use of audio                                                                                                                                                                                                                                                                                                    | I can choose appropriate edits to improve my podcast<br>I can listen to an audio recording to identify its strengths<br>I can suggest improvements to an audio recording                                                                   |
| Disciplinary Vocabulary                                                                                                                                                                                                                                                                                                                   | Substantive Vocabulary                                                                                                                                                                                                                     |
| Explain – To tell someone how or why something happens.<br>Design – To plan what something will look like or how it will work.<br>Analyse – To look carefully at information to find patterns or answers.<br>Refine – To make something better by improving it.<br>Evaluate – To think about what worked well and what could be improved. | audio, edit, record, podcast                                                                                                                                                                                                               |
| Programming – Repetition in games                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                            |
| To be able to (TBAT)                                                                                                                                                                                                                                                                                                                      | Success Criteria                                                                                                                                                                                                                           |
| To develop the use of count-controlled loops in a different programming environment                                                                                                                                                                                                                                                       | I can list an everyday task as a set of instructions including repetition<br>I can modify a snippet of code to create a given outcome<br>I can predict the outcome of a snippet of code                                                    |



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| To explain that in programming there are infinite loops and count controlled loops                                                                                                                                                                                                                                                        | I can choose when to use a count-controlled and an infinite loop<br>I can modify loops to produce a given outcome<br>I can recognise that some programming languages enable more than one process to be run at once |
| To develop a design that includes two or more loops which run at the same time                                                                                                                                                                                                                                                            | I can choose which action will be repeated for each object<br>I can evaluate the effectiveness of the repeated sequences used in my program<br>I can explain what the outcome of the repeated action should be      |
| To modify an infinite loop in a given program                                                                                                                                                                                                                                                                                             | I can explain the effect of my changes<br>I can identify which parts of a loop can be changed<br>I can re-use existing code snippets on new sprites                                                                 |
| To design a project that includes repetition                                                                                                                                                                                                                                                                                              | I can develop my own design explaining what my project will do<br>I can evaluate the use of repetition in a project<br>I can select key parts of a given project to use in my own design                            |
| To create a project that includes repetition                                                                                                                                                                                                                                                                                              | I can build a program that follows my design<br>I can evaluate the steps I followed when building my project<br>I can refine the algorithm in my design                                                             |
| <b>Disciplinary Vocabulary</b>                                                                                                                                                                                                                                                                                                            | <b>Substantive Vocabulary</b>                                                                                                                                                                                       |
| Explain – To tell someone how or why something happens.<br>Design – To plan what something will look like or how it will work.<br>Analyse – To look carefully at information to find patterns or answers.<br>Refine – To make something better by improving it.<br>Evaluate – To think about what worked well and what could be improved. | repetition, loop, algorithm                                                                                                                                                                                         |



| Year 5                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                     |
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| Computing systems and networks - Systems and searching                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                     |
| To be able to (TBAT)                                                                                                                                                                                                                                                                                         | Success Criteria                                                                                                                                                                                                    |
| To explain that computers can be connected together to form systems                                                                                                                                                                                                                                          | I can describe that a computer system features inputs, processes, and outputs<br>I can explain that computer systems communicate with other devices<br>I can explain that systems are built using a number of parts |
| To recognise the role of computer systems in our lives                                                                                                                                                                                                                                                       | I can explain the benefits of a given computer system<br>I can identify tasks that are managed by computer systems<br>I can identify the human elements of a computer system                                        |
| To experiment with search engines                                                                                                                                                                                                                                                                            | I can compare results from different search engines<br>I can make use of a web search to find specific information<br>I can refine my web search                                                                    |
| To describe how search engines select results                                                                                                                                                                                                                                                                | I can explain why we need tools to find things online<br>I can recognise the role of web crawlers in creating an index<br>I can relate a search term to the search engine's index                                   |
| To explain how search results are ranked                                                                                                                                                                                                                                                                     | I can explain that a search engine follows rules to rank results<br>I can give examples of criteria used by search engines to rank results<br>I can order a list by rank                                            |
| To recognise why the order of results is important, and to whom                                                                                                                                                                                                                                              | I can describe some of the ways that search results can be influenced<br>I can explain how search engines make money<br>I can recognise some of the limitations of search engines                                   |
| Disciplinary Vocabulary                                                                                                                                                                                                                                                                                      | Substantive Vocabulary                                                                                                                                                                                              |
| Analyse – To look carefully at information to find patterns or answers.<br>Refine – To make something better by improving it.<br>Justify – To explain and give reasons for your choices.<br>Evaluate – To think about what worked well and what could be improved.                                           | system, storage, search engine, algorithm, ranking                                                                                                                                                                  |
| Creating media - Video production                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                     |
| To be able to (TBAT)                                                                                                                                                                                                                                                                                         | Success Criteria                                                                                                                                                                                                    |
| To explain what makes a video effective                                                                                                                                                                                                                                                                      | I can compare features in different videos<br>I can explain that video is a visual media format<br>I can identify features of videos                                                                                |
| To identify digital devices that can record video                                                                                                                                                                                                                                                            | I can experiment with different camera angles<br>I can identify and find features on a digital video recording device<br>I can make use of a microphone                                                             |
| To capture video using a range of techniques                                                                                                                                                                                                                                                                 | I can capture video using a range of filming techniques<br>I can review how effective my video is<br>I can suggest filming techniques for a given purpose                                                           |
| To create a storyboard                                                                                                                                                                                                                                                                                       | I can create and save video content<br>I can decide which filming techniques I will use<br>I can outline the scenes of my video                                                                                     |
| To identify that video can be improved through reshooting and editing                                                                                                                                                                                                                                        | I can explain how to improve a video by reshooting and editing<br>I can select the correct tools to make edits to my video<br>I can store, retrieve, and export my recording to a computer                          |
| To consider the impact of the choices made when making and sharing a video                                                                                                                                                                                                                                   | I can evaluate my video and share my opinions<br>I can make edits to my video and improve the final outcome<br>I can recognise that my choices when making a video will impact on the quality of the final outcome  |
| Disciplinary Vocabulary                                                                                                                                                                                                                                                                                      | Substantive Vocabulary                                                                                                                                                                                              |
| Implement – To put a plan into action.<br>Analyse – To look carefully at information to find patterns or answers.<br>Refine – To make something better by improving it.<br>Justify – To explain and give reasons for your choices.<br>Evaluate – To think about what worked well and what could be improved. | video, storyboard                                                                                                                                                                                                   |
| Programming – Selection in physical computing                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                     |
| To be able to (TBAT)                                                                                                                                                                                                                                                                                         | Success Criteria                                                                                                                                                                                                    |
| To control a simple circuit connected to a computer                                                                                                                                                                                                                                                          | I can create a simple circuit and connect it to a microcontroller<br>I can explain what an infinite loop does<br>I can program a microcontroller to make an LED switch on                                           |
| To write a program that includes count-controlled loops                                                                                                                                                                                                                                                      | I can connect more than one output component to a microcontroller<br>I can design sequences that use count-controlled loops<br>I can use a count-controlled loop to control outputs                                 |



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| To explain that a loop can stop when a condition is met                                                                                                                                                                                                                                                      | I can design a conditional loop<br>I can explain that a condition is either true or false<br>I can program a microcontroller to respond to an input                                                         |
| To explain that a loop can be used to repeatedly check whether a condition has been met                                                                                                                                                                                                                      | I can explain that a condition being met can start an action<br>I can identify a condition and an action in my project<br>I can use selection (an 'if...then...' statement) to direct the flow of a program |
| To design a physical project that includes selection                                                                                                                                                                                                                                                         | I can create a detailed drawing of my project<br>I can describe what my project will do<br>I can identify a real-world example of a condition starting an action                                            |
| To create a program that controls a physical computing project                                                                                                                                                                                                                                               | I can test and debug my project<br>I can use selection to produce an intended outcome<br>I can write an algorithm that describes what my model will do                                                      |
| <b>Disciplinary Vocabulary</b>                                                                                                                                                                                                                                                                               | <b>Substantive Vocabulary</b>                                                                                                                                                                               |
| Implement – To put a plan into action.<br>Analyse – To look carefully at information to find patterns or answers.<br>Refine – To make something better by improving it.<br>Justify – To explain and give reasons for your choices.<br>Evaluate – To think about what worked well and what could be improved. | selection, input, output, microcontroller, condition                                                                                                                                                        |



| Year 6                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                       |
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| Computing systems and networks – Communication and collaboration                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                       |
| To be able to (TBAT)                                                                                                                                                                                                                                                                                                    | Success Criteria                                                                                                                                                                                                      |
| To explain the importance of internet addresses                                                                                                                                                                                                                                                                         | I can describe how computers use addresses to access websites<br>I can explain that internet devices have addresses<br>I can recognise that data is transferred using agreed methods                                  |
| To recognise how data is transferred across the internet                                                                                                                                                                                                                                                                | I can explain that all data transferred over the internet is in packets<br>I can explain that data is transferred over networks in packets<br>I can identify and explain the main parts of a data packet              |
| To explain how sharing information online can help people to work together                                                                                                                                                                                                                                              | I can explain that the internet allows different media to be shared<br>I can recognise how to access shared files stored online<br>I can send information over the internet in different ways                         |
| To evaluate different ways of working together online                                                                                                                                                                                                                                                                   | I can explain how the internet enables effective collaboration<br>I can identify different ways of working together online<br>I can recognise that working together on the internet can be public or private          |
| To recognise how we communicate using technology                                                                                                                                                                                                                                                                        | I can choose methods of communication to suit particular purposes<br>I can explain the different ways in which people communicate<br>I can identify that there are a variety of ways to communicate over the internet |
| To evaluate different methods of online communication                                                                                                                                                                                                                                                                   | I can compare different methods of communicating on the internet<br>I can decide when I should and should not share information online<br>I can explain that communication on the internet may not be private         |
| Disciplinary Vocabulary                                                                                                                                                                                                                                                                                                 | Substantive Vocabulary                                                                                                                                                                                                |
| Analyse – To look carefully at information to find patterns or answers.<br>Justify – To explain and give reasons for your choices.<br>Collaborate – To work together with others to achieve a goal.<br>Evaluate – To think about what worked well and what could be improved.                                           | protocol, IP address, DNS, communication, packet                                                                                                                                                                      |
| Computing systems and networks – Communication and collaboration                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                       |
| To be able to (TBAT)                                                                                                                                                                                                                                                                                                    | Success Criteria                                                                                                                                                                                                      |
| To review an existing website and consider its structure                                                                                                                                                                                                                                                                | I can discuss the different types of media used on websites<br>I can explore a website<br>I know that websites are written in HTML                                                                                    |
| To plan the features of a web page                                                                                                                                                                                                                                                                                      | I can draw a web page layout that suits my purpose<br>I can recognise the common features of a web page<br>I can suggest media to include on my page                                                                  |
| To consider the ownership and use of images (copyright)                                                                                                                                                                                                                                                                 | I can describe what is meant by the term 'fair use'<br>I can find copyright-free images<br>I can say why I should use copyright-free images                                                                           |
| To recognise the need to preview pages                                                                                                                                                                                                                                                                                  | I can add content to my own web page<br>I can evaluate what my web page looks like on different devices and suggest/make edits<br>I can preview what my web page looks like                                           |
| To outline the need for a navigation path                                                                                                                                                                                                                                                                               | I can describe why navigation paths are useful<br>I can explain what a navigation path is<br>I can make multiple web pages and link them using hyperlinks                                                             |
| To recognise the implications of linking to content owned by other people                                                                                                                                                                                                                                               | I can create hyperlinks to link to other people's work<br>I can evaluate the user experience of a website<br>I can explain the implication of linking to content owned by others                                      |
| Disciplinary Vocabulary                                                                                                                                                                                                                                                                                                 | Substantive Vocabulary                                                                                                                                                                                                |
| Analyse – To look carefully at information to find patterns or answers.<br>Implement – To put a plan into action.<br>Justify – To explain and give reasons for your choices.<br>Collaborate – To work together with others to achieve a goal.<br>Evaluate – To think about what worked well and what could be improved. | webpage, HTML, hyperlink, navigation                                                                                                                                                                                  |
| Programming – Variables in games                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                       |
| To be able to (TBAT)                                                                                                                                                                                                                                                                                                    | Success Criteria                                                                                                                                                                                                      |
| To define a 'variable' as something that is changeable                                                                                                                                                                                                                                                                  | I can explain that the way a variable changes can be defined<br>I can identify examples of information that is variable<br>I can identify that variables can hold numbers or letters                                  |
| To explain why a variable is used in a program                                                                                                                                                                                                                                                                          | I can explain that a variable has a name and a value<br>I can identify a program variable as a placeholder in memory for a                                                                                            |



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|                                                                                                                                                                                                                                                        | single value<br>I can recognise that the value of a variable can be changed                                                                                                                |
| To choose how to improve a game by using variables                                                                                                                                                                                                     | I can decide where in a program to change a variable<br>I can make use of an event in a program to set a variable<br>I can recognise that the value of a variable can be used by a program |
| To design a project that builds on a given example                                                                                                                                                                                                     | I can choose the artwork for my project<br>I can create algorithms for my project<br>I can explain my design choices                                                                       |
| To use my design to create a project                                                                                                                                                                                                                   | I can choose a name that identifies the role of a variable<br>I can create the artwork for my project<br>I can test the code that I have written                                           |
| To evaluate my project                                                                                                                                                                                                                                 | I can identify ways that my game could be improved<br>I can share my game with others<br>I can use variables to extend my game                                                             |
| <b>Disciplinary Vocabulary</b>                                                                                                                                                                                                                         | <b>Substantive Vocabulary</b>                                                                                                                                                              |
| Analyse – To look carefully at information to find patterns or answers.<br>Implement – To put a plan into action.<br>Justify – To explain and give reasons for your choices.<br>Evaluate – To think about what worked well and what could be improved. | variable, assign, value                                                                                                                                                                    |