Crescent Primary School

Healthy bodies, healthy minds | Dream BIG | WONDERFUL WORDS | CRESCENT VALUES | Our place in our world! | Creating connections

Crescent Primary School

# Computing Curriculum Map

| | Autumn | | Spring | | Summer | |
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| Year 1 | Creating Media<br>Digital Painting | Computer Systems and Networks<br>Technology Around us | Programming<br>Animations | Programming<br>Scratch JR | Data and Information<br>Grouping Data | Creating Media<br>Digital Writing |
| Year 2 | Creating Media<br>Photography | Creating Media<br>Presentation Skills | Data and Information<br>Pictograms | Computer Systems and Networks<br>IT around us | Creating Media<br>Digital Music | Programming<br>Quizzes |
| Year 3 | Creating Media<br>Desktop Publishing | Programming<br>Sequencing Sounds | Data and Information<br>Branching Databases | Computer Systems and Networks<br>Computer Networks | Programming<br>Events and Actions | Creating Media<br>Stop Frame Animation |
| Year 4 | Creating Media<br>Photo Editing | Computer Systems and Networks<br>The Internet | Programming<br>Repetition in shapes | Creating Media<br>Audio | Programming<br>Repetition in games | Creating Media<br>Word Processing |
| Year 5 | Programming<br>Physical Computing | Creating Media<br>Web Page Creation | Creating Media<br>3D Modelling | Programming<br>Selection | Computer Systems and Networks<br>Sharing Information | Data and Information<br>Flat File Database |
| Year 6 | Programming<br>Variables in Games | Data and Information<br>Spreadsheets | Creating Media<br>AR & VR | Computer Systems and Networks<br>Communication and Collaboration | Programming<br>Sensing Movement | Creating Media<br>Video Production |

| Statement Number | National Curriculum Statement |
|---|---|
| 1.1 | understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions |
| 1.2 | create and debug simple programs |
| 1.3 | use logical reasoning to predict the behaviour of simple programs |
| 1.4 | use technology purposefully to create, organise, store, manipulate and retrieve digital content |
| 1.5 | recognise common uses of information technology beyond school |
| 1.6 | use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. |

| Statement Number | National Curriculum Statement |
|---|---|
| 2.1 | design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts |
| 2.2 | use sequence, selection, and repetition in programs; work with variables and various forms of input and output |
| 2.3 | use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs |
| 2.4 | understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration |
| 2.5 | use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content |
| 2.6 | select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information |
| 2.7 | use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. |

# Computing Progression Map

| | | | NCS | Lesson Sequence | Concept - Declarative Knowledge – 'Knowing that' | Skills – Procedural Knowledge – 'Knowing how' | Wonderful Words |
|---|---|---|---|---|---|---|---|
| Year 1 | Autumn 1 | Creating Media<br>Digital Painting | 1.1<br>1.2<br>1.3<br>1.4<br>1.5<br>1.6 | 1. To describe what different freehand tools do<br>2. To use the shape tool and the line tools<br>3. To make careful choices when painting a digital picture<br>4. To explain why I chose the tools I used<br>5. To use a computer on my own to paint a picture<br>6. To compare painting a picture on a computer and on paper | • To explain what different freehand tools do<br>• To recognise computers can be used to create art<br>• To recognise a tool can be adjusted to suit my need<br>• To decide when it's appropriate to use each tool<br>• To consider impact of choices made<br>• To compare painting using a computer with painting using brushes | • To create a picture using freehand tools<br>• To use shape and line tools when precision is needed<br>• To use a range of paint colours<br>• To use a range of paint colours<br>• To use the undo button to correct a mistake<br>• To combine a range of tools to create a piece of artwork | paint program, tool, paintbrush, erase, fill, undo, Piet Mondrian, primary colours, shape tools, line tool, fill tool, undo tool Henri Matisse, shape tool, fill tool Wassily Kandinsky, feelings, colour, brush style Georges Seurat, pointillism, brush size pictures, painting, computers, like, prefer, dislike |
| | Autumn 2 | Computer Systems and Networks<br>Technology Around us | 1.1<br>1.2<br>1.3<br>1.4<br>1.5<br>1.6 | 1. To identify technology<br>2. To identify a computer and its main parts<br>3. To use a mouse in different ways<br>4. To use a keyboard to type on a computer<br>5. To use the keyboard to edit text<br>6. To create rules for using technology safely | • To explain that technology is something that can help us<br>• To identify examples of technology<br>• To explain how examples of technology help us<br>• To recognise that a computer is an example of technology<br>• To recognise that choices are made when using technology<br>• To explain why rules are needed when using technology | • To choose a piece of technology to do a job<br>• To recognise that some technology can be used in different ways<br>• To identify the main parts of a computer<br>• To use a mouse in different ways<br>• To use a keyboard to type<br>• To use the keyboard to edit text<br>• To show how to use technology safely | Technology Computer, mouse, trackpad, keyboard, screen, double-click, typing |
| | Spring 1 | Programming<br>Animations | 1.1<br>1.2<br>1.3<br>1.4<br>1.5<br>1.6 | 1. To choose a command for a given purpose<br>2. To show that a series of commands can be joined together<br>3. To identify the effect of changing a value<br>4. To explain that each sprite has its own instructions<br>5. To design the parts of a project<br>6. To use my algorithm to create a program | • To enact a given word<br>• To recall words that can be enacted<br>• To predict the outcome of a command on a device<br>• To list that commands can be used on a given device<br>• To explain what a given command does<br>• To match a command to an outcome<br>• To recognise how to run a command (press a button) | • To choose a series of words that can be enacted as a program<br>• To choose a series of commands that can be run as a program<br>• To run a program on a device | ScratchJr, command, sprite, compare, programming, programming area Block, joining, **Start** block, run, program, background, delete, reset, algorithm, predict Effect, change, value, block Instructions, delete, program, background, appropriate, |

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| | Spring 2 | Programming<br>Scratch JR | 1.1<br>1.2<br>1.3<br>1.4<br>1.5<br>1.6 | 1. I understand what algorithms are.<br>2. I know how to write simple algorithms<br>3. I understand the sequence of algorithms is important<br>4. I know how to debug simple algorithms | • To choose a command for a given purpose<br>• To understand that a program is a set of commands a computer can run<br>• To recall that a series of instructions can be issued before they are enacted<br>• To build a sequence of commands in steps<br>• To combine commands in a program | | Algorithm Sequence Order<br>Bug Debug Program<br>Code digital |
| | Summer 1 | Data and Information<br>Grouping Data | 1.1<br>1.2<br>1.3<br>1.4<br>1.5<br>1.6 | 1. To label objects<br>2. To identify that objects can be counted<br>3. To describe objects in different ways<br>4. To count objects with the same properties<br>5. To compare groups of objects<br>6. To answer questions about groups of objects | • To identify that objects can be counted<br>• To recognise that information can be presented<br>• To recognise that information can be presented in different ways | • To identify some attributes of an object<br>• To collect simple data<br>• To show that collected data can be counted<br>• To describe the properties of an object<br>• To choose an attribute to group objects by<br>• To group objects to answer questions<br>• To explain that objects can be grouped by similarities (attribute)<br>• To describe a group of objects (based on commonality) | Object, group, label, search, image, property, colour, size, shape, data set, more, less, most, fewest, the same |
| | Summer 2 | Creating Media<br>Digital Writing | 1.1<br>1.2<br>1.3<br>1.4<br>1.5<br>1.6 | 1. To use a computer to write<br>2. To add and remove text on a computer<br>3. To identify that the look of a text can be change on a computer<br>4. To make careful choices when changing text<br>5. To explain why I use the tools that I choose<br>6. To compare typing on a computer to writing on paper | • To recognise that a keyboard is used to enter text into a computer<br>• To recognise that the Shift key changes the output of a key<br>• To recognise that text can be changed<br>• To recognise that text can be edited<br>• To recognise that the appearance of text can be changed<br>• To consider the impact of choices made | • To use letter, number, and Space keys to enter text into a computer<br>• To use punctuation and special characters<br>• To select text<br>• To use the Backspace key to remove text<br>• To position the text cursor in a chosen location<br>• To choose options to achieve a desired effect<br>• To change the appearance of text on a computer<br>• To use Undo | Word processor, keyboard, keys, letters, type Numbers, space, backspace, text, cursor Capital letters, bold, italic, underline, toolbar, Mouse, select, font<br>Undo, redo, font, format, Compare, typing, writing |
| Year | Autu | Crea<br>ting<br>Medi | 1.1 | 1. To use a digital device to take a photograph | • To recognise that some digital devices can capture images using a camera | • To capture a digital image | Device, camera, photograph, capture, image, digital |

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| | | | 1.2<br>1.3<br>1.4<br>1.5<br>1.6 | 2. To make choices when taking a photograph<br>3. To describe what makes a good photograph<br>4. To decide how photographs can be improved<br>5. To use tools to change an image<br>6. To recognise that photos can be changed | • To talk about how to take a photograph<br>• To recognise that photographs can be saved and viewed later<br>• To make choices when composing my photograph<br>• To recognise features of 'good' photographs<br>• To identify how a photograph could be improved<br>• To explain the effect of light on a photograph<br>• To recognise that photographs can be change after they have been taken<br>• To recognise that some images are not accurate | • To take photographs in both landscape and portrait format<br>• To view photographs on a digital device<br>• To decide which photographs to keep<br>• To hold the camera still to take a clear photograph<br>• To use zoom to change the composition of a photograph<br>• To consider lighting before taking a photograph<br>• To use filters to edit the appearance of a photograph<br>• To improve a photograph by retaking it | Landscape, portrait Framing, subject, compose, Light sources, flash, focus, background Editing, filter Format, filter, photoshopping |
| | Autumn 2 | Creating Media<br>Presentation Skills | 1.1<br>1.2<br>1.3<br>1.4<br>1.5<br>1.6 | 1. To use basic computer skills to open and save in folders<br>2. To organise ideas for a presentation<br>3. To create a simple presentation with text<br>4. To add and format an image<br>5. To reorder slides and present a presentation<br>6. To find files and print | • To identify the main features of a presentation.<br>• To name some of the most popular presentation applications.<br>• To explain choices for presentation styles | • To log on and log off.<br>• To create a folder and save a file in a folder.<br>• To add a new slide and change the layout<br>• To edit a slide including inserting text boxes<br>• To insert/copy and resize images from a folder and other sources.<br>• To prepare and present<br>• To find saved documents and applications.<br>• To print using different options. | Instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, Artwork, design, route, mat, Debugging, , decomposition |
| | Spring 1 | Data and Information<br>Pictograms | 1.1<br>1.2<br>1.3<br>1.4<br>1.5<br>1.6 | 1. To recognise that we can count and compare objects using tally charts<br>2. To recognise that objects can be represented as pictures<br>3. To create a pictogram<br>4. To select objects by attribute and make comparisons<br>5. To explain that people can be described by attributes<br>To explain that we can present information using a computer | • To use a tally chart to collect data<br>• To compare objects that have been grouped by attribute<br>• To suggest appropriate headings for tally charts and pictograms<br>• To explain that we can present information using a computer<br>• To use a computer program to present information in different ways<br>• To construct a given comparison question | • To show I can enter data onto a computer<br>• To recognise that people, animals and objects can be described by attributes<br>• To use a computer to view data in different formats<br>• To use pictograms to answer single-attribute questions<br>• To use a computer to answer comparison questions (graphs, tables) | More than, less than, most, least, organise, data, object, tally chart, votes, total Pictogram, enter, data, tally chart, compare, count, more common, least common attribute most popular, least popular, conclusion block diagram, most, least, common, sharing, data |

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| | Spring 2 | Computer Systems and Networks<br>IT around us | 1.1<br>1.2<br>1.3<br>1.4<br>1.5<br>1.6 | 1. To recognise the uses and features of information technology<br>2. To identify the uses of information technology in the school<br>3. To identify information technology beyond school<br>4. To explain how information technology helps us.<br>5. To explain how to use information technology safely<br>6. To recognise that choices are made when using information technology | • To recognise different types of computers used in school<br>• To identify that a computer is a part of information technology<br>• To recognise the features of information technology<br>• To talk about uses of information technology<br>• To explain how information technology benefits us<br>• To say how rules for using information technology can help us<br>• To recognise that choices are made when using information technology | • To recognise that choices are made when using information technology<br>• To identify information technology in school<br>• To identify information technology beyond school<br>• To show how to use information technology safely | Information technology (IT), computer, barcode, scanner/scan |
| | Summer 1 | Creating Media<br>Digital Music | 1.1<br>1.2<br>1.3<br>1.4<br>1.5<br>1.6 | 1. To say how music can make us feel<br>2. To identify that there are patterns in music<br>3. To experiment with sound using a computer<br>4. To use a computer to create a musical pattern<br>5. To create music for a purpose<br>6. To review and refine our computer work | • To identify that computers can be used to play sounds of different instruments<br>• To identify that the same pattern can be represented in different ways<br>• To compare playing music on instruments with making music on a computer | • To experiment with musical patterns on a computer<br>• To experiment with different sounds on a computer<br>• To use a computer to create a musical pattern<br>• To use a computer to compose a rhythm and a melody on a given theme<br>• To use a computer to play the same music in different ways (e.g. tempo)<br>• To evaluate a musical composition created on a computer<br>• To improve a musical composition created on a computer | Music, planets, Mars, Venus, war, peace, quiet, loud, feelings, emotions<br>Pattern, rhythm, pulse, Neptune, pitch, tempo, notes, instrument, tempo, Create, emotion, pitch, pulse/beat, tempo, instrument, open, edit |
| | Summer 2 | Programming<br>Quizzes | 1.1<br>1.2<br>1.3<br>1.4<br>1.5<br>1.6 | 1. To explain that a sequence of commands has a start<br>2. To explain that a sequence of commands has an outcome<br>3. To create a program using a given design<br>4. To change a given design<br>5. To create a program using my own design<br>6. To decide how my project can be improved | • To describe a series of instructions as a 'sequence'<br>• To recall that a series of instructions can be issued before they are enacted<br>• To use logical reasoning to predict the outcome of a program | • To choose a series of words that can be enacted as a sequence<br>• To explain what happens when we change the order of instructions<br>• To choose a series of commands that can be run as a program<br>• To trace a sequence to make a prediction<br>• To test a prediction by running the sequence<br>• To create and debug a program that I have written<br>• To run a program on a device | Sequence, command, program, run, start, outcome, predict, program, blocks, Sprite, algorithm, design, Actions, project, sequence, modify, change, match, Compare, design, debug, features, evaluate |

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| Year 3 | Autumn 1 | Creating Media<br>Desktop Publishing | 2.1<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6<br>2.7 | 1. To explain that the composition of digital images can be changed<br>2. To explain that colours can be changed in digital images<br>3. To explain how cloning can be used in photo editing<br>4. To explain that images can be combined<br>5. To combine images for a purpose<br>6. To evaluate how changes can improve an image | • To recognise how text and images can be used together to convey information<br>• To define landscape and portrait as two different page orientations<br>• To consider how different layouts can suit different purposes<br>• To recognise that DTP pages can be structured with placeholders<br>• To recognise how different font styles and effects are used for particular purposes<br>• To consider the benefits of using a DTP application | • To show that page orientation can be changed<br>• To add text to a placeholder<br>• To organise text and image placeholders in a page layout<br>• To add and remove images to and from placeholders<br>• To edit text in a placeholder<br>• To move resize and rotate images<br>• To choose fonts and apply effects to text<br>• To review a document | Text, images, advantages, disadvantages, communicate, Font, font style, communicate, template Landscape, portrait, orientation, placeholder, template, layout, content, Layout, purpose, Desktop publishing, copy, paste benefits |
| | Autumn 2 | Programming<br>Sequencing Sound | 2.1<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6<br>2.7 | 1. To explore a new programming environment<br>2. To identify that commands have an outcome<br>3. To explain that a program has a start<br>4. To recognise that a sequence of commands can have an order<br>5. To change the appearance of my project<br>6. To create a project from a task description | • To explain that programs start because of an input<br>• To explain what a sequence is<br>• To identify that a program includes sequences of commands<br>• To identify that the sequence of a program is a process<br>• To explain that the order of commands can affect a program's output<br>• To identify that different sequences can achieve the same output<br>• To identify that different sequences can achieve different outputs | • To build a sequence of commands<br>• To combine commands in a program<br>• To order commands in a program<br>• To create a sequence of commands to produce a given outcome | Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, Sequence, event, task, design, code, run the code, order, note, chord Sprite, stage, costume, backdrop algorithm, bug, debug |
| | Spring 1 | Data and Information<br>Branching Databases | 2.1<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6 | 1. To create questions with yes/no answers<br>2. To identify the attributes needed to collect data about an object<br>3. To create a branching database<br>4. To explain why it is helpful for a database to be well structured<br>5. To plan the structure of a branching database<br>6. To independently create an identification too | • To investigate questions with yes/no answers<br>• To identify attributes that you can ask yes/no questions about<br>• To select an attribute to sperate objects into two similarly sized groups<br>• To explain that a branching database is an identification tool<br>• To recognise that a data set can be structured using yes/no questions<br>• To explain that a well-structured branching database will enable you to identify objects using fewer questions | • To create questions with yes/no answers<br>• To choose questions that will divide objects into evenly sized subgroups<br>• To repeatedly create subgroups of objects<br>• To identify an object using a branching database<br>• To retrieve information from different levels of the branching database | Attribute, value, questions, table, objects, Branching database, database equal, even, separate database, attribute, value, questions, objects, structure, compare, order, organize, information, decision tree |

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| | | | 2.7 | | • To relate two levels of a branching database using AND<br>• To suggest real-world applications for branching databases | | |
| | Spring 2 | Computer Systems and Networks<br>Computer Networks | 2.1<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6<br>2.7 | 1. To explain how digital devices function<br>2. To identify input and output devices<br>3. To recognise how digital devices can change the way that we work<br>4. To explain how a computer network can be used to share information<br>5. To explore how digital devices can be connected<br>6. To recognise the physical components of a network | • To describe what an input is<br>• To describe what an output is<br>• To identify how changing the process can affect the output<br>• To recognise that computers can be connected<br>• To explain how information is passed through multiple connections | • To identify input and output devices<br>• To explain that a computer system accepts an input and processes it to produce an output<br>• To explain the role of a switch server and wireless access point in a network<br>• To identify networks around me<br>• To explain how networks can be connected | Digital device, input, process, output<br>Program, digital, non-digital<br>Connection, network, network switch<br>Network cables, network sockets |
| | Summer 1 | Programming<br>Events and Actions | 2.1<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6<br>2.7 | 1. To explain how a sprite moves in an existing project<br>2. To create a program to move a sprite in four directions<br>3. To adapt a program to a new context<br>4. To develop my program by adding features<br>5. To identify and fix bugs in a program<br>6. To design and create a maze-based challenge | • To explain that programs start because of an input<br>• To explain what a sequence is<br>• To identify that a program includes sequences of commands<br>• To identify that the sequence of a program is a process<br>• To explain that the order of commands can affect a program's output<br>• To identify that different sequences can achieve the same output<br>• To identify that different sequences can achieve different outputs | • To build a sequence of commands<br>• To combine commands in a program<br>• To order commands in a program<br>• To create a sequence of commands to produce a given outcome | Motion, event, sprite, algorithm, logic Move, resize,Extension block, pen up, set up, Pen, design, event, action, Debugging, errors, setup |
| | Summer 2 | Creating Media<br>Stop Frame Animation | 2.1<br>2.2<br>2.3<br>2.4 | 1. To explain that animation is a sequence of drawings or photographs<br>2. To relate animated movement with a sequence of images<br>3. To plan an animation<br>4. To identify the need to work consistently and carefully<br>5. To review and improve an animation | • To explain that an animation is made up of a sequence of images<br>• To identify that a capturing device needs to be in a fixed position<br>• To recognise that smaller movements create smoother animation<br>• To explain the need for consistency in working | • To plan an animation using a storyboard<br>• To set up the work area with an awareness of what will be captured<br>• To capture an image<br>• To use the onion skinning tool to review subject position | Animation, flipbook, Stop-frame animation, frame, sequence, image, photograph, Setting, character, events, stop-frame animation, onion skinning, consistency, Evaluation, animation, onion skinning, delete, frame, |

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| | | | 2.5<br>2.6<br>2.7 | 6. To evaluate the impact of adding other media to an animation | | • To move a subject between captures<br>• To review a captured sequence of frames as an animation<br>• To remove frames to improve an animation | Animation, media, import, transition |
| Year 4 | Autumn 1 | Creating Media<br>Photo editing | 2.1<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6<br>2.7 | 1. To explain that the composition of digital images can be changed<br>2. To explain that colours can be changed in digital images<br>3. To explain how cloning can be used in photo editing<br>4. To explain that images can be combined<br>5. To combine images for a purpose<br>6. To evaluate how changes can improve an image | • To use an application to change the whole of a digital image<br>• To use an application to change part of a digital image<br>• To use an application to add to the composition of a digital image<br>• To change the composition of a digital image by rotating and flipping<br>• To change the composition of a digital image by cropping<br>• To select part of a digital image<br>• To adjust colours of a digital image<br>• To apply filters to a digital image<br>• To apply effects to a digital image<br>• To use clone, copy, and paste to change the composition of a digital image<br>• To use cloning to retouch a digital image<br>• To add text to a digital image | • To recognise that digital images can be manipulated<br>• To recognise that digital images can be changed for different purposes<br>• To choose the most appropriate tool for a particular purpose<br>• To consider the impact of changes made on the quality of the image | Image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, retouch, clone copy, paste, combine, made up, real, composite, cut, copy, paste, alter, background, foreground, Rotate, crop, zoom, clone, select, copy, paste, undo, font |
| | Autumn 2 | Computer Systems and Networks<br>The Internet | 2.1<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6 | 1. To describe how networks physically connect to other networks<br>2. To recognise how networked devices make up the internet<br>3. To outline how websites can be shared via the World Wide Web (WWW)<br>4. To describe how content can be added and accessed on the World Wide Web (WWW)<br>5. To recognise how the content of the WWW is created by people | • To describe how networks connect to other networks<br>• To explain that the global interconnection of networks is the internet<br>• To recognise the need for security on the internet<br>• To recognise that the World Wide Web is part of the internet<br>• To outline how information can be shared via the World Wide Web | | Internet, network, router, network security, Network switch, server, wireless access point (WAP), Website, web page, web address, routing, web browser, World Wide Web, internet, content, website, web page, links, files, use, content, download, sharing, |

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| | | | 2.7 | 6. To evaluate the consequences of unreliable content | • To describe how to access the World Wide Web<br>• To describe the types of content/media that can be added, created, and shared on the World Wide Web<br>• To explain how the content of the World Wide Web is created, owned, and shared by people<br>• To explain that the internet enables us to view the World Wide Web<br>• To explain that the World Wide Web comprises of websites and web pages<br>• To describe the current limitations of World Wide Web media<br>• To evaluate the reliability of content and the consequences of unreliable content<br>• To explain the benefits of the World Wide Web | | ownership, permission, Information, sharing, accurate, honest, content, adverts |
| | Spring 1 | Programming<br>Repetition in shapes | 2.1<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6<br>2.7 | 1. To identify that accuracy in programming is important<br>2. To create a program in a text-based language<br>3. To explain what 'repeat' means<br>4. To modify a count-controlled loop to produce a given outcome<br>5. To decompose a task into small steps<br>6. To create a program that uses count-controlled loops to produce a given outcome | • To relate what 'repeat' means<br>• To identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves<br>• To explain that we can use a loop command in a program to repeat instructions<br>• To identify patterns in a sequence<br>• To identify a loop within a program<br>• To explain that in programming there are indefinite loops and count-controlled loops<br>• To explain that an indefinite loop will run until the program is stopped<br>• To explain that you can program a loop to stop after a specific number of times<br>• To identify patterns in a sequence, eg 'step 3 times' means the same as 'step, step, step'<br>• To justify when to use a loop and when not to<br>• To explain the importance of instruction order in a loop<br>• To recognise that not all tools enable more than one process to be run at once | • To list an everyday task as a set of instructions including repetition<br>• To use an indefinite loop to produce a given outcome<br>• To use a count-controlled loop to produce a given outcome<br>• To plan a program that includes appropriate loops to produce a given outcome<br>• To recognise tools that enable more than one process to be run at the same time (concurrency)<br>• To create two or more sequences that run at the same time | Program, Turtle, Commands, Code snippet, Algorithm, design, bug, logo Pattern, repeat, repetition, count-controlled loop, value Trace, decompose, procedure, Count-controlled loop, procedure, debug, program, |
| | Spring 2 | Creating Media<br>Audio | 2.1<br>2.2 | 1. To identify that sound can be recorded<br>2. To explain that audio recordings can be edited | • To identify that sound can be recorded<br>• To identify that an input device is needed to record sound | • To record sound using a computer<br>• To play recorded audio<br>• To import audio into a project<br>• To delete a section of audio | Audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, |

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| | | | 2.3<br>2.4<br>2.5<br>2.6<br>2.7 | 3. To recognise the different parts of creating a podcast project<br>4. To apply audio editing skills independently<br>5. To combine audio to enhance my podcast project<br>6. To evaluate editing choices made | • To identify that output devices are needed to play audio<br>• To recognise that recorded audio can be stored on a computer<br>• To recognise that audio can be edited<br>• To recognise that sound can be represented visually as a waveform<br>• To recognise that audio can be layered so that multiple sounds can be played at the same time<br>• To consider the results of editing choices made | • To change the volume of tracks in a project | layer, import, record, playback, edit, selection, save, export, MP3, editing, evaluate, feedback |
| | Summer 1 | Programming<br>Repetition in games | 2.1<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6<br>2.7 | 1. To develop the use of count-controlled loops in a different programming environment<br>2. To explain that in programming there are infinite loops and count-controlled loops<br>3. To develop a design that includes two or more loops which run at the same time<br>4. To modify an infinite loop in a given program<br>5. To design a project that includes repetition<br>6. To create a project that includes repetition | • To relate what 'repeat' means<br>• To identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves<br>• To explain that we can use a loop command in a program to repeat instructions<br>• To identify patterns in a sequence<br>• To identify a loop within a program<br>• To explain that in programming there are indefinite loops and count-controlled loops<br>• To explain that an indefinite loop will run until the program is stopped<br>• To explain that you can program a loop to stop after a specific number of times<br>• To identify patterns in a sequence, eg 'step 3 times' means the same as 'step, step, step'<br>• To justify when to use a loop and when not to<br>• To explain the importance of instruction order in a loop<br>• To recognise that not all tools enable more than one process to be run at once | • To list an everyday task as a set of instructions including repetition<br>• To use an indefinite loop to produce a given outcome<br>• To use a count-controlled loop to produce a given outcome<br>• To plan a program that includes appropriate loops to produce a given outcome<br>• To recognise tools that enable more than one process to be run at the same time (concurrency)<br>• To create two or more sequences that run at the same time | Scratch, programming, sprite, blocks, code, loop, repeat, value, Block, repeat, forever, infinite loop, count-controlled loop, costume, Repetition, count-controlled loop, animate, costume, event block, duplicate, repeat, forever, infinite loop, modify, design, Infinite loop, repetition, sprite, algorithm, algorithm, duplicate, debug, refine, evaluate |
| | Summer 2 | Creating Media<br>Word Processing | 2.1<br>2.2<br>2.3 | 1. To develop the use of count-controlled loops in a different programming environment<br>2. To explain that in programming there are infinite loops and count-controlled loops | • To suggest ways to improve a layout<br>• To suggest ways to change a table<br>• To know tools and techniques to improve the layout of a document | • To use some of the main keyboard shortcuts<br>• To apply specific effects to an image<br>• To add a spelling to the spelling dictionary | Format, image, insert, Microsoft Word, font, align, select, folder, edit, document, webpage, copy, paste, toolbar, copyright layout, object, area, bullets, numbering, text box, |

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| | | | 2.4<br>2.5<br>2.6<br>2.7 | 3. To develop a design that includes two or more loops which run at the same time<br>4. To modify an infinite loop in a given program<br>5. To design a project that includes repetition<br>6. To create a project that includes repetition | | • To add or delete rows or columns in a table<br>• To type at an appropriate speed<br>• To choose a relevant website to link a document to<br>• To create a hyperlink. | manipulate, edit, features, save, wrap, review, spellcheck, grammar, ignore, change, ignore all, add to dictionary, highlight, cursor, insert, table, border, cell, shading, colour, rota, toolbar, navigate., Columns, page layout, page size, A5, A4, toolbar, tool, menu, insert, picture, recipe. |
| Year 5 | Autumn 1 | Programming<br>Physical Computing | 2.1<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6<br>2.7 | 1. To control a simple circuit connected to a computer<br>2. To write a program that includes count-controlled loops<br>3. To explain that a loop can stop when a condition is met<br>4. To explain that a loop can be used to repeatedly check whether a condition has been met<br>5. To design a physical project that includes selection<br>6. To create a program that controls a physical computing project | • To explain that a condition can only be true or false<br>• To relate that a count-controlled loop contains a condition<br>• To compare a count controlled loop with a condition-controlled loop<br>• To explain that a condition-controlled loop will stop when a condition is met<br>• To explain that when a condition is met a loop will complete a cycle before it stops<br>• To explain that selection can be used to branch the flow of a program<br>• To explain that a loop can be used to repeatedly check whether a condition has been met<br>• To explain the importance of instruction order in 'if... then... else...' statements | • To choose a condition to use in a program<br>• To create a condition-controlled loop<br>• To use a condition in an 'if... then…' statement to start an action<br>• To use selection to switch program flow<br>• To use 'if... then... else…' to switch program flow in one of two ways | Microcontroller, components, connection, infinite loop, motor, repetition, count-controlled loop Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition Input, output, selection, condition, action, repetition, debug |
| | Autumn 2 | Creating Media<br>Web Page Creation | 2.1<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6 | 1. To review an existing website and consider its structure<br>2. To plan the features of a web page<br>3. To consider the ownership and use of images (copyright)<br>4. To recognise the need to preview pages<br>5. To outline the need for a navigation path<br>6. To recognise the implications of linking to content owned by other people | • To recognise the relationship between HTML and visual display<br>• To recognise that web pages can contain different media types<br>• To recognise that web pages are written by people<br>• To recognise that a website is a set of hyperlinked web pages<br>• To recognise the need to preview pages (different screens / devices)<br>• To recognise the need for a navigation path | • To review an existing website (navigation bars, header)<br>• To create a new blank web page<br>• To add text to a web page<br>• To set the style of text on a web page<br>• To change the appearance of text<br>• To embed media in a web page<br>• To add web pages to a website<br>• To preview a web page (different screen sizes)<br>• To insert hyperlinks between pages | Website, web page, browser, media, Hypertext Markup Language (HTML) logo, layout, header, Copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage Hyperlink, implication, external link, embed |

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| | | | 2.7 | | • To consider the ownership and use of images (copyright)<br>• To recognise the implications of linking to content owned by others | • To insert hyperlinks to another site | |
| | Spring 1 | Creating Media<br>3D Modelling | 2.1<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6<br>2.7 | 1. **To** recognise that you can work in three dimensions on a computer<br>2. To identify that digital 3D objects can be modified<br>3. To recognise that objects can be combined in a 3D model<br>4. To create a 3D model for a given purpose<br>5. To plan my own 3D model<br>6. To create my own digital 3D model | • To explain that 3D models can be created on a computer<br>• To recognise that a 3D environment can be viewed from different perspectives<br>• To recognise that digital tools can be used to manipulate 3D objects<br>• To show how placeholders can create holes in 3D objects<br>• To recognise that artefacts can be broken down into a collection of 3D objects | • To position 3D shapes relative to one another<br>• To use digital tools to modify 3D objects<br>• To combine objects to create a 3D digital artefact<br>• To use digital tools to accurately size 3D objects<br>• To construct a 3D model which reflects a real world object | 2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, Rotate, duplicate, group Cylinder, placeholder, hollow Combine Construct, evaluate, modify |
| | Spring 2 | Programming<br>Selection in Quizzes | 2.1<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6<br>2.7 | 1. To explain how selection is used in computer programs<br>2. To relate that a conditional statement connects a condition to an outcome<br>3. To explain how selection directs the flow of a program<br>4. To design a program that uses selection<br>5. To create a program that uses selection<br>6. To evaluate my program | • To explain that a condition can only be true or false<br>• To relate that a count-controlled loop contains a condition<br>• To compare a count controlled loop with a condition-controlled loop<br>• To explain that a condition-controlled loop will stop when a condition is met<br>• To explain that when a condition is met a loop will complete a cycle before it stops<br>• To explain that selection can be used to branch the flow of a program<br>• To explain that a loop can be used to repeatedly check whether a condition has been met<br>• To explain the importance of instruction order in 'if... then... else...' statements | • To choose a condition to use in a program<br>• To create a condition-controlled loop<br>• To use a condition in an 'if... then…' statement to start an action<br>• To use selection to switch program flow<br>• To use 'if... then... else…' to switch program flow in one of two ways | Selection, condition, true, false, count-controlled loop, outcomes, conditional statement (the linking together of a condition and outcomes), algorithm, program, debug, Task, design, input, outcomes, Implement, design, test, run |
| | Summer 1 | Computer Systems and Networks | 2.1<br>2.2 | 1. To explain that computers can be connected together to form systems<br>2. To recognise the role of computer systems in our lives<br>3. To experiment with search engines | • To recognise that a system is a set of interconnected parts which work together<br>• To identify that data can be transferred between IT systems | • To describe the input and output of a search engine<br>• To demonstrate that different search terms produce different results | System, connection, digital, input, process, output, Search, search engine, refine, Index, crawler, bot, |

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| | | | 2.3<br>2.4<br>2.5<br>2.6<br>2.7 | 4. To describe how search engines select results<br>5. To explain how search results are ranked<br>6. To recognise why the order of results is important, and to whom | • To recognise inputs, processes, and outputs in large IT systems<br>• To relate that search engines are examples of large IT systems<br>• To explain why search engines create indices, and that they are different for each search engine<br>• To explain how search results are selected<br>• To explain why the order of results is important and to whom<br>• To explain how search engines make money by selling targeted advertising space | • To evaluate the results of search terms | Ordering, ranking, links, algorithm, optimisation search engine (SEO) content creator |
| | Summer 2 | Data and Information<br>Flat File Databases | 2.1<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6<br>2.7 | 1. To use a form to record information<br>2. To compare paper and computer-based databases<br>3. To outline how you can answer questions by grouping and then sorting data<br>4. To explain that tools can be used to select specific data<br>5. To explain that computer programs can be used to compare data visually<br>6. To use a real-world database to answer questions | • To explain that a computer program can be used to organise data<br>• To explain that tools can be used to select data to answer questions<br>• To outline how ordering data allows us to answer some questions<br>• To outline how operands can be used to filter data<br>• To outline how 'AND' and 'OR' can be used to refine data selection<br>• To explain that computer programs can be used to compare data visually<br>• To explain that we present information to communicate a message | • To choose different ways to view data<br>• To choose which attribute and value to search by to answer a given question (operands)<br>• To ask questions that need more than one attribute to answer<br>• To choose which attribute to sort data by to answer a given question<br>• To choose multiple criteria to search data to answer a given question (AND and OR)<br>• To select an appropriate graph to visually compare data<br>• To choose suitable ways to present information to other people | Database, data, information, record, field, sort, order, group, value, search, criteria, graph, chart, axis, compare, filter, presentation |
| Year 6 | Autumn 1 | Programming<br>Variables in games | 2.1<br>2.2<br>2.3 | 1. To define a 'variable' as something that is changeable<br>2. To explain why a variable is used in a program<br>3. To choose how to improve a game by using variables<br>4. To design a project that builds on a given example | • To define a 'variable' as something that is changeable<br>• To identify examples of information that is variable, for example, a football score during a match<br>• To explain that a variable has a name and a value | • To identify a variable in an existing program<br>• To experiment with the value of an existing variable<br>• To choose a name that identifies the role of a variable to make it easier for humans to understand it<br>• To decide where in a program to set a variable | Variable, change, name, value, design, event, algorithm, code, Task, artwork, program, project, code, test, debug, Improve, evaluate, share |

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| | | | 2.4<br>2.5<br>2.6<br>2.7 | 5. To use my design to create a project<br>6. To evaluate my project | • To recognise that the value of a variable can be used by a program<br>• To recognise that the value of a variable can be updated<br>• To identify that variables can hold numbers (integers) or letters (strings)<br>• To define the way that a variable is changed<br>• To recognise that a variable can be set as a constant (fixed value)<br>• To explain the importance of setting up a variable at the start of a program (initialisation)<br>• To explain that the name of a variable needs to be unique | • To update a variable with a user input<br>• To use an event in a program to update a variable<br>• To use a variable in a conditional statement to control the flow of a program<br>• To use the same variable in more than one location in a program | |
| | Autumn 2 | Data and Information<br>Spreadsheets | 2.1<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6<br>2.7 | 1. To create a data set in a spreadsheet<br>2. To build a data set in a spreadsheet<br>3. To explain that formulas can be used to produce calculated data<br>4. To apply formulas to data<br>5. To create a spreadsheet to plan an event<br>6. To choose suitable ways to present data | • To identify questions that can be answered using spreadsheet data<br>• To explain what an item of data is in a spreadsheet<br>• To explain how the data type determines how a spreadsheet can process the data<br>• To outline that there are different software tools to work with data<br>• To explain that formulas can be used to produce calculated data<br>• To recognise cells can be linked<br>• To explain why data should be organised in a spreadsheet<br>• To recognise that a cell's value automatically updates when the value in a linked cell is changed<br>• To evaluate results in comparison to the question asked | • To calculate data using a formula for each operation<br>• To use functions to create new data<br>• To use existing cells within a formula<br>• To choose suitable ways to present spreadsheet data | Data, collecting, table, structure, spreadsheet, Cell, cell reference, data item, format, Formula, calculation, input, output, calculate, operation, formula, range, duplicate, sigma, Propose, question, data set, organised, formula, Chart, evaluate, results, comparison, software, tools, |
| | Spring 1 | Creating Media<br>AR & VR | 2.1<br>2.2<br>2.3<br>2.4 | 1. To know how to create an interactive guide to an image by embedding digital content and publishing it online.<br>2. To know how to create a web site which includes a variety of media.<br>3. To know how to create videos using a range of media – green screen, animations, film and image. | • To explain how VR and AR works<br>• To know how to create an interactive guide<br>• To know a range of media and decide which would be suitable<br>• To know how to link digital content | • To embed digital content<br>• To publish online<br>• To decompose a design<br>• To create a 3D photograph<br>• To create an interactive AR/VR experience. | Embed, upload, 360, aspect ratio, export, trim, record, VR (Virtual Reality), AR (Augmented Reality), interactive, impact, quality |

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| | | | 2.5<br>2.6<br>2.7 | 4. To know how to make a digital photo using camera settings<br>5. To know how to create an interactive VR experience.<br>6. To know how VR and AR works.<br>7. To know how to decompose a design or code to focus on specific parts | | | |
| | Spring 2 | Computer Systems and Networks<br>Communication and Collaboration | 2.1<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6<br>2.7 | 1. To explain the importance of internet addresses<br>2. To recognise how data is transferred across the internet<br>3. To explain how sharing information online can help people to work together<br>4. To evaluate different ways of working together online<br>5. To recognise how we communicate using technology<br>6. To evaluate different methods of online communication | • To recognise that data is transferred across networks using agreed protocols (methods)<br>• To recognise that connections between computers allow access to shared stored files<br>• To explain that data is transferred in packets<br>• To recognise computers connected to the internet allow people in different places to work together<br>• To discuss the opportunities that technology offers for communication and collaboration<br>• To explain which types of media can be shared through the internet<br>• To explain that communicating and collaboration using the internet can be public or private | • To outline methods of communicating and collaborating using the internet<br>• To choose methods of internet communication and collaboration for given purposes<br>• To evaluate different methods of online communication and collaboration<br>• To decide what you should and should not share online | Communication, protocol, data, address, Internet Protocol (IP) address, Domain Name Server (DNS) Packet, header, data payload, Chat, explore, slide deck, Reuse, remix, collaboration, internet, public, private, one-way, two-way, one-to-one, one-to-many |
| | Summer 1 | Programming<br>Sensing Movement | 2.1<br>2.2<br>2.3<br>2.4 | 1. To create a program to run on a controllable device<br>2. To explain that selection can control the flow of a program<br>3. To update a variable with a user input<br>4. To use a conditional statement to compare a variable to a value<br>5. To design a project that uses inputs and outputs on a controllable device<br>6. To develop a program to use inputs and outputs on a controllable device | • To define a 'variable' as something that is changeable<br>• To explain that a variable can be used in a program, eg 'score'<br>• To define a program variable as a placeholder in memory for a single value<br>• To explain that a variable has a name and a value<br>• To recognise that the value of a variable can be used by a program<br>• To recognise that the value of a variable can be updated<br>• To identify that variables can hold numbers (integers) or letters (strings) | • To identify a variable in an existing program<br>• To experiment with the value of an existing variable<br>• To choose a name that identifies the role of a variable to make it easier for humans to understand it<br>• To decide where in a program to set a variable<br>• To update a variable with a user input<br>• To use an event in a program to update a variable | Micro:bit, MakeCode, input, process, output, flashing, USB, trace, Selection, condition, if then else, variable, random, Input, sensing, accelerometer, value, Compass, direction, navigation, design, task, algorithm, variable, step counter, Plan, create, code, test, debug |

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| | | | 2.5<br>2.6<br>2.7 | | • To define the way that a variable is changed<br>• To recognise that a variable can be set as a constant (fixed value)<br>• To explain the importance of setting up a variable at the start of a program (initialisation)<br>• To explain that there is only one value for a variable at any one time<br>• To explain that if you read a variable, the value remains To explain that if you change the value of a variable, you cannot access the previous value (cannot undo)<br>• To explain that the name of a variable needs to be unique | • To use a variable in a conditional statement to control the flow of a program<br>• To use the same variable in more than one location in a program | |
| | Summer 2 | Creating Media<br>Video Production | 2.1<br>2.2<br>2.3<br>2.4<br>2.5<br>2.6<br>2.7 | 1. To explain what makes a video effective<br>2. To use a digital device to record video<br>3. To capture video using a range of techniques<br>4. To create a storyboard<br>5. To identify that video can be improved through reshooting and editing<br>6. To consider the impact of the choices made when making and sharing a video | • To explain the features of video as a visual media format<br>• To recognise which devices can and can't record video<br>• To explain the purpose of a storyboard<br>• To recognise that filming techniques can be used to create different effects<br>• To recognise the need to regularly review and reflect on a video project<br>• To explain the limitations of editing video on a recording device<br>• To identify that videos can be edited on a recording device or on a computer<br>• To identify videos can be improved through and reshooting or editing<br>• To recognise projects need to be exported to be shared | • To use different camera angles<br>• To use pan, tilt and zoom<br>• To identify features of a video recording device or application<br>• To combine filming techniques for a given purpose<br>• To determine what scenes will convey your idea<br>• To choose to reshoot a scene or improve later through editing<br>• To decide what changes I will make when editing<br>• To use split, trim and crop to edit a video | Video, audio, camera, talking head, panning, close up, microphone, lens, mid range, long shot, moving subject, side by side, high angle, low angle, normal angle, Static camera, zoom, pan, tilt, storyboard, filming, review, Import, split, trim, clip, edit, reshoot<br>Delete, trim, reorder, export, evaluate, share |