

NC Objectives

Key stage 1 Pupils should be taught to:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- 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.

Key stage 2 Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- 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
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- 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
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Computing Long Term Overview

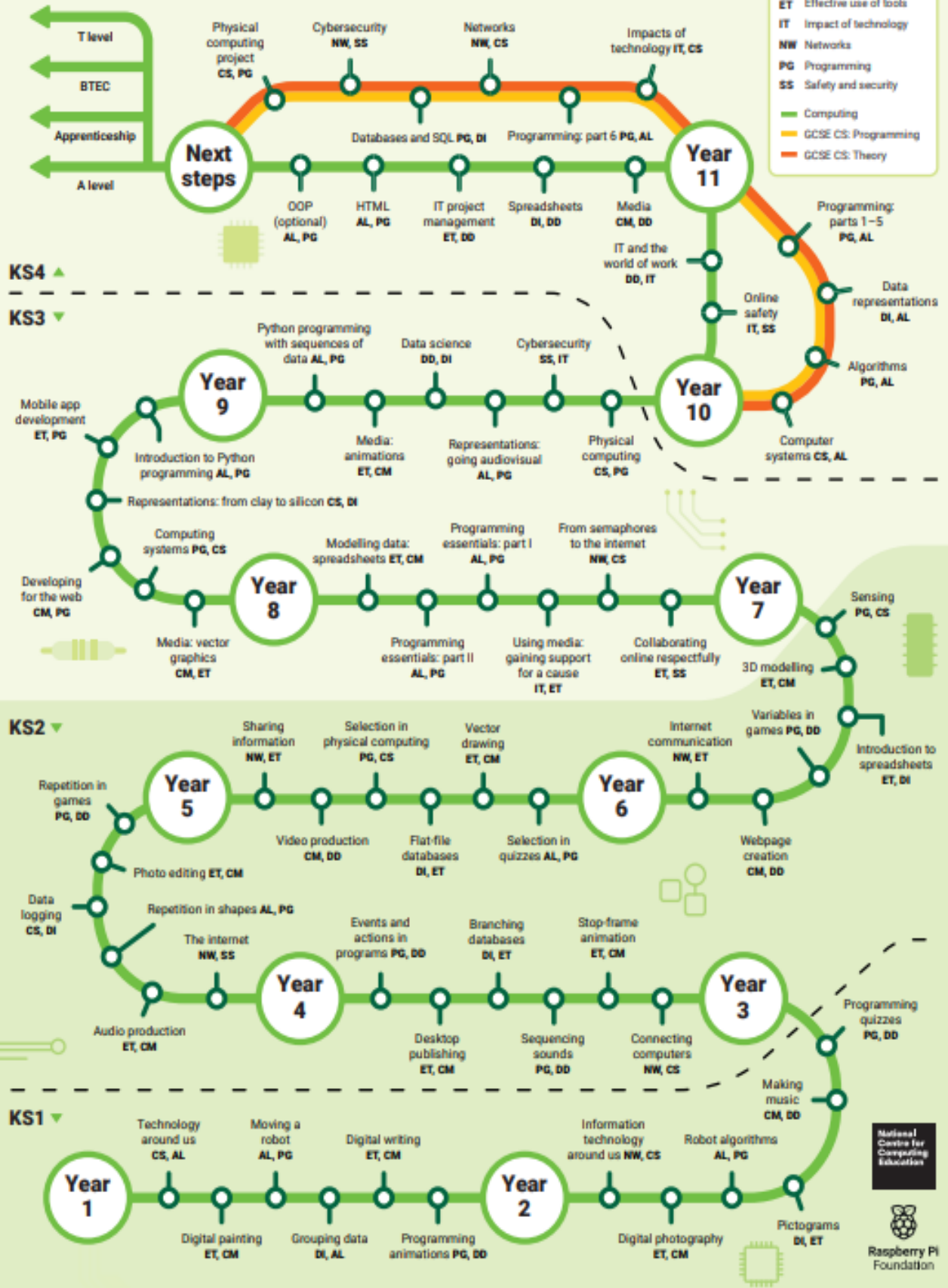
	<u>Advent 1</u>	<u>Advent 2</u>	<u>Lent 1</u>	<u>Lent 2</u>	<u>Pentecost 1</u>	<u>Pentecost 2</u>
<u>Year 1</u>	Programming A - Moving a robot (NCCE)		Programming B - Introduction to animation (NCCE)		Creating media - Digital Painting/Writing (NCCE)	
	(Computing systems and networks – Technology around us (NCCE) taught cross-curricular and demonstrated through computer use in other modules and discussions. Data and information – Grouping data (NCCE) taught cross-curricular through Science and Maths lessons.)					
<u>Year 2</u>	Creating media – Digital photography (NCCE)	Creating media – Making music (NCCE)	Programming A – Robot algorithms (NCCE)		Programming B – An introduction to quizzes (NCCE)	
	(Computing systems and networks – Technology around us (NCCE) taught cross-curricular and demonstrated through computer use in other modules and discussions. Data and information – Pictograms (NCCE) taught cross-curricular through Maths lessons.					

<u>Year 3</u>	Computing systems and networks – connecting computers (NCCE)	Creating media – animation (NCCE)		Creating media – desktop publishing (NCCE)	Programming B – Events and actions (NCCE)
	(Data and information – branching databases can be taught cross-curricular through Science.)				
<u>Year 4</u>	Computer systems and networks – the Internet (NCCE)	Creating media – photo editing (NCCE)	Programming A – Repetition in shapes (NCCE)	Programming B – Repetition in games (NCCE)	
	(Creating media – audio editing (NCCE) taught cross-curricular to create a podcast demonstrating knowledge learned in one of the Geography/History units.				
<u>Year 5</u>	Computer systems and networks – sharing information (NCCE)	Creating media - Vector drawing (NCCE)	Data and information – Flat-file databases (NCCE)	Programming A – selection in physical computing (NCCE)	Programming B – selection in quizzes (NCCE)
	(Creating media – video editing (NCCE) taught cross-curricular to create a video demonstrating knowledge learned in one of the Geography/History units.)				
<u>Year 6</u>	Computer systems and networks – communication / Creating media – Web page creation (NCCE)	Data and information – Spreadsheets (NCCE)	Programming A – Variables in games (NCCE)		Programming B – Sensing (NCCE)

Teach Computing Curriculum Journey

Download the curriculum resources: nccce.io/get_tcc

Key	
AL	Algorithms
CS	Computing systems
CM	Creating media
DI	Data and information
DD	Design and development
ET	Effective use of tools
IT	Impact of technology
NW	Networks
PG	Programming
SS	Safety and security
— Computing	
— GCSE CS: Programming	
— GCSE CS: Theory	



Year 1

Term/Unit	Advent 1/2 Programming A - Moving a robot (NCCE)	Lent 1/2 Programming B - Introduction to animation (NCCE)	Pentecost 1/2 Creating media - Digital Painting/Writing (NCCE)
<u>Lesson 1 objectives</u>	<p>To explain what a given command will do</p> <ul style="list-style-type: none"> - I can match a command to an outcome - I can predict the outcome of a command on a device - I can run a command on a device 	<p>Lesson 1: To choose a command for a given purpose</p> <ul style="list-style-type: none"> - I can compare different programming tools - I can find which commands move a sprite - I can use commands to move a sprite 	<p>To use the shape tool and the line tools</p> <ul style="list-style-type: none"> - I can make marks with the square and line tools - I can use the shape and line tools effectively - I can use the shape and line tools to recreate the work of an artist
<u>Lesson 2 objectives</u>	<p>To act out a given word</p> <ul style="list-style-type: none"> - I can follow an instruction - I can give directions - I can recall words that can be acted out 	<p>To show that a series of commands can be joined together</p> <ul style="list-style-type: none"> - I can run my program - I can use a start block in a program - I can use more than one block by joining them together 	<p>To make careful choices when painting a digital picture</p> <ul style="list-style-type: none"> - I can choose appropriate shapes - I can create a picture in the style of an artist - I can make appropriate colour choices
<u>Lesson 3 objectives</u>	<p>To combine forwards and backwards commands to make a sequence</p> <ul style="list-style-type: none"> - I can compare forwards and backwards movements - I can predict the outcome of a sequence involving forwards and backwards commands - I can start a sequence from the same place 	<p>To identify the effect of changing a value</p> <ul style="list-style-type: none"> - I can change the value - I can find blocks which have numbers - I can say what happens when I change a value 	<p>To use a computer on my own to paint a picture</p> <ul style="list-style-type: none"> - I can change the colour and brush sizes - I can make dots of colour on the page - I can use dots of colour to create a picture in the style of an artist on my own
<u>Lesson 4 objectives</u>	<p>To combine four direction commands to make sequences</p>	<p>To explain that each sprite has its own instructions</p> <ul style="list-style-type: none"> - I can add blocks to each of my sprites - I can delete a sprite 	<p>To use a computer to write</p>

	<ul style="list-style-type: none"> - I can compare left and right turns - I can experiment with turn and move commands to move a robot - I can predict the outcome of a sequence involving up to four commands 	<ul style="list-style-type: none"> - I can show that a project can include more than one sprite 	<ul style="list-style-type: none"> - I can identify and find keys on a keyboard - I can open a word processor - I can recognise keys on a keyboard - I can enter text into a computer - I can use backspace to remove text - I can use letter, number, and space keys - I can explain what the keys that I have learnt about already do - I can identify the toolbar and use bold, italic, and underline - I can type capital letters
<p><u>Lesson 5 objectives</u></p>	<p>To plan a simple program</p> <ul style="list-style-type: none"> - I can choose the order of commands in a sequence - I can debug my program - I can explain what my program should do 	<p>To design the parts of a project</p> <ul style="list-style-type: none"> - I can choose appropriate artwork for my project - I can create an algorithm for each sprite - I can decide how each sprite will move 	<p>To explain why I used the tools that I chose</p> <ul style="list-style-type: none"> - I can choose appropriate paint tools and colours to recreate the work of an artist - I can say which tools were helpful and why - I know that different paint tools do different jobs - I can decide if my changes have improved my writing - I can say what tool I used to change the text - I can use 'undo' to remove changes
<p><u>Lesson 6 objectives</u></p>	<p>To find more than one solution to a problem</p> <ul style="list-style-type: none"> - I can identify several possible solutions - I can plan two programs - I can use two different programs to get to the same place 	<p>To use my algorithm to create a program</p> <ul style="list-style-type: none"> - I can add programming blocks based on my algorithm - I can test the programs I have created - I can use sprites which match my design 	<p>To compare writing/creating a picture on a computer with writing on paper</p> <ul style="list-style-type: none"> - I can compare using a computer with using a pencil and paper - I can say which method I like best - I can write a message on a computer and on paper

			<ul style="list-style-type: none"> - I can explain that pictures can be made in lots of different ways - I can say whether I prefer painting using a computer or using paper - I can spot the differences between painting on a computer and on paper
<u>Progression</u>	<p>As this is a Year 1 unit, no prior knowledge is assumed.</p> <p>This unit progresses learners' knowledge and understanding of giving and following instructions. It moves from giving instructions to each other to giving instructions to a robot by programming it.</p>	<p>This unit progresses learners' knowledge and understanding of programming and follows on from 'Programming A – Moving a robot', where children will have learned to program a floor robot using instructions.</p>	<p>Learners should be familiar with:</p> <ul style="list-style-type: none"> ● How to switch their device on ● Usernames ● Passwords <p>This unit progresses the learners' knowledge and understanding of using computers to create and manipulate digital content, focussing on using a word processor. The learners will develop their ability to find and use the keys on a keyboard in order to create digital content. The learners are then introduced to manipulating the resulting text, making cosmetic changes, and justifying their reason for making these changes. Following this unit, learners will further develop their digital writing skills in the Year 3 – 'Desktop publishing' unit and the Year 6 – 'Web page development' unit.</p>

<p><u>Curriculum links</u></p>	<p>National curriculum links</p> <ul style="list-style-type: none"> - Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions - Create and debug simple programs - Use logical reasoning to predict the behaviour of simple programs - Recognise common uses of information technology beyond school 	<p>National curriculum links</p> <ul style="list-style-type: none"> - Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions - Create and debug simple programs - Use logical reasoning to predict the behaviour of simple programs 	<p>National curriculum links</p> <p>KS1 Computing</p> <ul style="list-style-type: none"> - Use technology purposefully to create, organise, store, manipulate, and retrieve digital content <p>KS1 Art and Design</p> <p>Pupils should be taught:</p> <ul style="list-style-type: none"> - To develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form, and space - About the work of a range of artists, craft makers, and designers, describing the differences and similarities between different practices and disciplines and making links to their own work <hr/> <p>National curriculum links</p> <ul style="list-style-type: none"> - Use technology purposefully to create, organise, store, manipulate, and retrieve digital content - Use technology safely and respectfully, keeping personal information private <p>Further national curriculum links</p> <p>English – writing (Y1)</p> <p>Write sentences by:</p> <ul style="list-style-type: none"> - saying out loud what they are going to write about - composing a sentence orally before writing it - sequencing sentences to form short narratives
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			<p>- re-reading what they have written to check that it makes sense</p> <p>Education for a Connected World links</p> <p>Privacy and security</p> <p>- I can give reasons why I should only share information with people I choose to and can trust. (Y1)</p>
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Year 2

<u>Term/Unit</u>	<u>Advent 1</u> <u>Creating media –</u> <u>Digital photography</u> <u>(NCCE)</u>	<u>Advent 2</u> <u>Creating media –</u> <u>Digital music (NCCE)</u>	<u>Lent 1/2</u> <u>Programming A – Robot algorithms (NCCE)</u>	<u>Pentecost 1/2</u> <u>Programming B – An introduction to quizzes</u> <u>(NCCE)</u>
<u>Lesson 1</u> <u>objectives</u>	<p>To use a digital device to take a photograph</p> <ul style="list-style-type: none"> - I can recognise what devices can be used to take photographs - I can talk about how to take a photograph - I can explain what I did to capture a digital photo 	<p>To say how music can make us feel</p> <ul style="list-style-type: none"> - I can identify simple differences in pieces of music - I can describe music using adjectives - I can say what I do and don't like about a piece of music 	<p>To describe a series of instructions as a sequence</p> <ul style="list-style-type: none"> - I can follow instructions given by someone else - I can choose a series of words that can be acted out as a sequence - I can give clear instructions 	<p>To explain that a sequence of commands has a start</p> <ul style="list-style-type: none"> - I can identify the start of a sequence - I can identify that a program needs to be started - I can show how to run my program

<p><u>Lesson 2 objectives</u></p>	<p>To make choices when taking a photograph</p> <ul style="list-style-type: none"> - I can explain the process of taking a good photograph - I can take photos in both landscape and portrait format - I can explain why a photo looks better in portrait or landscape format 	<p>To identify that there are patterns in music</p> <ul style="list-style-type: none"> - I can create a rhythm pattern - I can play an instrument following a rhythm pattern - I can explain that music is created and played by humans 	<p>To explain what happens when we change the order of instructions</p> <ul style="list-style-type: none"> - I can use the same instructions to create different algorithms - I can use an algorithm to program a sequence on a floor robot - I can show the difference in outcomes between two sequences that consist of the same instructions 	<p>To explain that a sequence of commands has an outcome</p> <ul style="list-style-type: none"> - I can predict the outcome of a sequence of commands - I can match two sequences with the same outcome - I can change the outcome of a sequence of commands
<p><u>Lesson 3 objectives</u></p>	<p>To describe what makes a good photograph</p> <ul style="list-style-type: none"> - I can identify what is wrong with a photograph - I can discuss how to take a good photograph - I can improve a photograph by retaking it 	<p>To experiment with sound using a computer</p> <ul style="list-style-type: none"> - I can connect images with sounds - I can use a computer to experiment with pitch - I can relate an idea to a piece of music 	<p>To use logical reasoning to predict the outcome of a program</p> <ul style="list-style-type: none"> - I can follow a sequence - I can predict the outcome of a sequence - I can compare my prediction to the program outcome 	<p>To create a program using a given design</p> <ul style="list-style-type: none"> - I can work out the actions of a sprite in an algorithm - I can decide which blocks to use to meet the design - I can build the sequences of blocks I need
<p><u>Lesson 4 objectives</u></p>	<p>To decide how photographs can be improved</p>	<p>To use a computer to create a musical pattern</p>	<p>To explain that programming projects can have code and artwork</p> <ul style="list-style-type: none"> - I can explain the choices that I made for my mat design 	<p>To change a given design</p> <ul style="list-style-type: none"> - I can choose backgrounds for the design - I can choose characters for the design

	<ul style="list-style-type: none"> - I can explore the effect that light has on a photo - I can experiment with different light sources - I can explain why a picture may be unclear 	<ul style="list-style-type: none"> - I can identify that music is a sequence of notes - I can explain how my music can be played in different ways - I can refine my musical pattern on a computer 	<ul style="list-style-type: none"> - I can identify different routes around my mat - I can test my mat to make sure that it is usable 	<ul style="list-style-type: none"> - I can create a program based on the new design
<u>Lesson 5 objectives</u>	<p>To use tools to change an image</p> <ul style="list-style-type: none"> - I can recognise that images can be changed - I can use a tool to achieve a desired effect - I can explain my choices 	<p>To create music for a purpose</p> <ul style="list-style-type: none"> - I can create a rhythm which represents an animal I've chosen - I can create my animal's rhythm on a computer - I can add a sequence of notes to my rhythm 	<p>To design an algorithm</p> <ul style="list-style-type: none"> - I can explain what my algorithm should achieve - I can create an algorithm to meet my goal - I can use my algorithm to create a program 	<p>To create a program using my own design</p> <ul style="list-style-type: none"> - I can choose the images for my own design - I can create an algorithm - I can build sequences of blocks to match my design
<u>Lesson 6</u>	<p>To recognise that photos can be changed</p> <ul style="list-style-type: none"> - I can apply a range of photography skills to capture a photo - I can recognise which photos have been changed - I can identify which photos are real and 	<p>To review and refine our computer work</p> <ul style="list-style-type: none"> - I can review my work - I can explain how I changed my work - I can listen to music and describe how it makes me feel 	<p>To create and debug a program that I have written</p> <ul style="list-style-type: none"> - I can test and debug each part of the program - I can plan algorithms for different parts of a task - I can put together the different parts of my program 	<p>To decide how my project can be improved</p> <ul style="list-style-type: none"> - I can compare my project to my design - I can improve my project by adding features - I can debug my program

	which have been changed			
<u>Progression</u>			In advance of the lessons in this Year 2 unit, learners should have had some experience of creating short programs using floor robots and predicting the outcome of a simple program. This unit progresses learners' knowledge and understanding of algorithms and how they are implemented as programs on digital devices. Learners will spend time looking at how the order of commands affects outcomes. Learners will use this knowledge and logical reasoning to trace programs and predict outcomes.	This unit progresses learners' knowledge and understanding of instructions in sequences and the use of logical reasoning to predict outcomes.
<u>Curriculum links</u>			<u>National curriculum links</u> - Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions - Create and debug simple programs - Use logical reasoning to predict the behaviour of simple programs	<u>National curriculum links</u> - Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - Create and debug simple programs - Use logical reasoning to predict the behaviour of simple programs - Use technology purposefully to create, organise, store, manipulate and retrieve digital content

Year 3

<u>Term/Unit</u>	<u>Advent 1</u>	<u>Advent 2</u> <u>Creating media – Stop-frame animation</u> <u>(NCCE)</u>	<u>Lent 1 / 2</u> <u>Creating media – desktop publishing</u> <u>(NCCE)</u>	<u>Pentecost 1 / 2</u> <u>Programming B – Events and actions</u> <u>(NCCE)</u>
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	<u>Computing systems and networks – connecting computers (NCCE)</u>			
<u>Lesson 1 objectives</u>	<p>To explain how digital devices function</p> <ul style="list-style-type: none"> - I can explain that digital devices accept inputs - I can explain that digital devices produce outputs - I can follow a process 	<p>To explain that animation is a sequence of drawings or photographs</p> <ul style="list-style-type: none"> - I can draw a sequence of pictures - I can create an effective flip book—style animation - I can explain how an animation/flip book works 	<p>To recognise how text and images convey information</p> <ul style="list-style-type: none"> - I can explain the difference between text and images - I can recognise that text and images can communicate messages clearly - I can identify the advantages and disadvantages of using text and images 	<p>To explain how a sprite moves in an existing project</p> <ul style="list-style-type: none"> - I can explain the relationship between an event and an action - I can choose which keys to use for actions and explain my choices - I can identify a way to improve a program
<u>Lesson 2 objectives</u>	<p>To identify input and output devices</p> <ul style="list-style-type: none"> - I can classify input and output devices - I can describe a simple process - I can design a digital device 	<p>To relate animated movement with a sequence of images</p> <ul style="list-style-type: none"> - I can predict what an animation will look like - I can explain why little changes are needed for each frame - I can create an effective stop-frame animation 	<p>To recognise that text and layout can be edited</p> <ul style="list-style-type: none"> - I can change font style, size, and colours for a given purpose - I can edit text - I can explain that text can be changed to communicate more clearly 	<p>To create a program to move a sprite in four directions</p> <ul style="list-style-type: none"> - I can choose a character for my project - I can choose a suitable size for a character in a maze I can program movement
<u>Lesson 3 objectives</u>	<p>To recognise how digital devices can change the way that we work</p> <ul style="list-style-type: none"> - I can explain how I use digital devices for different activities - I can recognise similarities between using digital devices and using non-digital tools 	<p>To plan an animation</p> <ul style="list-style-type: none"> - I can break down a story into settings, characters and events - I can describe an animation that is achievable on screen - I can create a storyboard 	<p>To choose appropriate page settings</p> <ul style="list-style-type: none"> - I can explain what ‘page orientation’ means - I can recognise placeholders and say why they are important - I can create a template for a particular purpose 	<p>To adapt a program to a new context</p> <ul style="list-style-type: none"> - I can use a programming extension - I can consider the real world when making design choices - I can choose blocks to set up my program

	- I can suggest differences between using digital devices and using non-digital tools			
<u>Lesson 4 objectives</u>	<p>To explain how a computer network can be used to share information</p> <ul style="list-style-type: none"> -I can recognise different connections - I can explain how messages are passed through multiple connections - I can discuss why we need a network switch 	<p>To identify the need to work consistently and carefully</p> <ul style="list-style-type: none"> - I can use onion skinning to help me make small changes between frames - I can review a sequence of frames to check my work - I can evaluate the quality of my animation 	<p>To add content to a desktop publishing publication</p> <ul style="list-style-type: none"> - I can choose the best locations for my content - I can paste text and images to create a magazine cover - I can make changes to content after I've added it 	<p>To develop my program by adding features</p> <ul style="list-style-type: none"> - I can identify additional features (from a given set of blocks) - I can choose suitable keys to turn on additional features - I can build more sequences of commands to make my design work
<u>Lesson 5 objectives</u>	<p>To explore how digital devices can be connected</p> <ul style="list-style-type: none"> - I can recognise that a computer network is made up of a number of devices - I can demonstrate how information can be passed between devices - I can explain the role of a switch, server, and wireless access point in a network 	<p>To review and improve an animation</p> <ul style="list-style-type: none"> - I can explain ways to make my animation better - I can evaluate another learner's animation - I can improve my animation based on feedback 	<p>To consider how different layouts can suit different purposes</p> <ul style="list-style-type: none"> - I can identify different layouts - I can match a layout to a purpose - I can choose a suitable layout for a given purpose 	<p>To identify and fix bugs in a program</p> <ul style="list-style-type: none"> - I can test a program against a given design - I can match a piece of code to an outcome - I can modify a program using a design
<u>Lesson 6 objectives</u>	To recognise the physical components of a network	To evaluate the impact of adding other media to an animation	To consider the benefits of desktop publishing	To design and create a maze-based challenge

	<ul style="list-style-type: none"> - I can identify how devices in a network are connected together - I can identify networked devices around me - I can identify the benefits of computer networks 	<ul style="list-style-type: none"> - I can add other media to my animation - I can explain why I added other media to my animation - I can evaluate my final film 	<ul style="list-style-type: none"> - I can identify the uses of desktop publishing in the real world - I can say why desktop publishing might be helpful - I can compare work made on desktop publishing to work created by hand 	<ul style="list-style-type: none"> - I can make design choices and justify them - I can implement my design - I can evaluate my project
<u>Progression</u>	<p>This unit progresses learners' knowledge and understanding of technology by focusing on digital and non-digital devices, and introducing the concept of computers connected together as a network. Following this unit, learners will explore the internet as a network of networks.</p>	<p>This unit progresses students' knowledge and understanding of using digital devices to create media, exploring how they can create stop-frame animations. Following this unit, learners will further develop their video editing skills in Year 5.</p>	<p>This unit progresses learners' knowledge and understanding of using digital devices to combine text and images building on work from the following units; Digital Writing Year 1, Digital painting Year 1, and Digital Photography Year 2.</p>	<p>This unit assumes that learners will have some prior experience of programming. The key stage 1 National Centre for Computing Education units focus on floor robots and ScratchJr, however experience of other languages or environments may also be useful.</p>

<p>Curriculum links</p>	<p>National curriculum links</p> <p>Computing</p> <ul style="list-style-type: none"> - use sequence, selection, and repetition in programs; work with variables and various forms of input and output - 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 - 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 <p>Maths (Lesson 1)</p>	<p>National curriculum computing links</p> <p>Computing</p> <ul style="list-style-type: none"> - 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 - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. <p>Further national curriculum links</p> <p>Literacy links</p> <ul style="list-style-type: none"> - Pupils should be taught to: draft and write by: in narratives, creating settings, characters and plot - Pupils should be taught to: proof-read for spelling and punctuation errors 	<p>National curriculum links</p> <p>Computing</p> <ul style="list-style-type: none"> - Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content - 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 <p>English programmes of study links</p> <ul style="list-style-type: none"> - Pupils should be taught to draft and write by: in non-narrative material, using simple organisational devices [for example, headings and subheadings] - Evaluate and edit by assessing the effectiveness of their own and others' writing and suggesting improvements - Proofread for spelling and punctuation errors <p>Education for a Connected World links</p> <p>Managing online information</p> <ul style="list-style-type: none"> - I can use key phrases in search engines - I can use search technologies effectively 	<p>National curriculum links</p> <ul style="list-style-type: none"> - Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts - Use sequence, selection, and repetition in programs; work with variables and various forms of input and output - Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs - 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
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	<p>- Number and place value: solve number problems and practical problems involving these ideas.</p> <p>Art (Lesson 3) - to improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials [for example, pencil, charcoal, paint, clay]</p>		<p>Copyright and ownership - When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it - I can demonstrate the use of search tools to find and access online content which can be reused by others</p>	
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Year 4

<u>Term/Unit</u>	<u>Advent 1</u> <u>Computer systems and networks – the Internet (NCCE)</u>	<u>Advent 2</u> <u>Creating media – photo editing (NCCE)</u>	<u>Lent 1 / 2</u> <u>Programming A – Repetition in shapes (NCCE)</u>	<u>Pentecost 1 / 2</u> <u>Programming B – Repetition in games (NCCE)</u>
<u>Lesson 1 objectives</u>	<p>To describe how networks physically connect to other networks</p> <ul style="list-style-type: none"> - I can describe the internet as a network of networks - I can demonstrate how information is shared across the internet - I can discuss why a network needs protecting 	<p>To explain that the composition of digital images can be changed</p> <ul style="list-style-type: none"> - I can improve an image by rotating it - I can explain why I might crop an image - I can use photo editing software to crop an image 	<p>To identify that accuracy in programming is important</p> <ul style="list-style-type: none"> - I can program a computer by typing commands - I can explain the effect of changing a value of a command - I can create a code snippet for a given purpose 	<p>To develop the use of count-controlled loops in a different programming environment</p> <ul style="list-style-type: none"> - I can list an everyday task as a set of instructions including repetition - I can predict the outcome of a snippet of code - I can modify a snippet of code to create a given outcome

<p><u>Lesson 2 objectives</u></p>	<p>To recognise how networked devices make up the internet</p> <ul style="list-style-type: none"> - I can describe networked devices and how they connect - I can explain that the internet is used to provide many services - I can recognise that the World Wide Web contains websites and web pages 	<p>To explain that colours can be changed in digital images</p> <ul style="list-style-type: none"> - I can explain that different colour effects make you think and feel different things - I can experiment with different colour effects - I can explain why I chose certain colour effects 	<p>To create a program in a text-based language</p> <ul style="list-style-type: none"> - I can use a template to draw what I want my program to do - I can write an algorithm to produce a given outcome - I can test my algorithm in a text-based language 	<p>To explain that in programming there are infinite loops and count-controlled loops</p> <ul style="list-style-type: none"> - I can modify loops to produce a given outcome - I can choose when to use a count-controlled and an infinite loop - I can recognise that some programming languages enable more than one process to be run at once
<p><u>Lesson 3 objectives</u></p>	<p>To outline how websites can be shared via the World Wide Web (WWW)</p> <ul style="list-style-type: none"> - I can explain the types of media that can be shared on the WWW - I can describe where websites are stored when uploaded to the WWW - I can describe how to access websites on the WWW 	<p>To explain how cloning can be used in photo editing</p> <ul style="list-style-type: none"> - I can add to the composition of an image by cloning - I can identify how a photo edit can be improved - I can remove parts of an image using cloning 	<p>To explain what 'repeat' means</p> <ul style="list-style-type: none"> - I can identify repetition in everyday tasks - I can identify patterns in a sequence - I can use a count-controlled loop to produce a given outcome 	<p>To develop a design that includes two or more loops which run at the same time</p> <ul style="list-style-type: none"> - I can choose which action will be repeated for each object - I can explain what the outcome of the repeated action should be - I can evaluate the effectiveness of the repeated sequences used in my program
<p><u>Lesson 4 objectives</u></p>	<p>To describe how content can be added and accessed on the World Wide Web (WWW)</p> <ul style="list-style-type: none"> - I can explain what media can be found on websites - I can recognise that I can add content to the WWW - I can explain that internet services can be used to create content online 	<p>To explain that images can be combined</p> <ul style="list-style-type: none"> - I can experiment with tools to select and copy part of an image - I can use a range of tools to copy between images - I can explain why photos might be edited 	<p>To modify a count-controlled loop to produce a given outcome</p> <ul style="list-style-type: none"> - I can identify the effect of changing the number of times a task is repeated - I can predict the outcome of a program containing a count-controlled loop 	<p>To modify an infinite loop in a given program</p> <ul style="list-style-type: none"> - I can identify which parts of a loop can be changed - I can explain the effect of my changes - I can re-use existing code snippets on new sprites

			- I can choose which values to change in a loop	
<u>Lesson 5 objectives</u>	<p>To recognise how the content of the WWW is created by people</p> <ul style="list-style-type: none"> - I can explain that websites and their content are created by people - I can suggest who owns the content on websites - I can explain that there are rules to protect content 	<p>To combine images for a purpose</p> <ul style="list-style-type: none"> - I can describe the image I want to create - I can choose suitable images for my project - I can create a project that is a combination of other images 	<p>To decompose a task into small steps</p> <ul style="list-style-type: none"> - I can identify ‘chunks’ of actions in the real world - I can use a procedure in a program - I can explain that a computer can repeatedly call a procedure 	<p>To design a project that includes repetition</p> <ul style="list-style-type: none"> - can evaluate the use of repetition in a project - I can select key parts of a given project to use in my own design - I can develop my own design explaining what my project will do
<u>Lesson 6 objectives</u>	<p>To evaluate the consequences of unreliable content</p> <ul style="list-style-type: none"> - I can explain that not everything on the World Wide Web is true - I can explain why some information I find online may not be honest, accurate, or legal - I can explain why I need to think carefully before I share or reshare content 	<p>To evaluate how changes can improve an image</p> <ul style="list-style-type: none"> - I can review images against a given criteria - I can use feedback to guide making changes - I can combine text and my image to complete the project 	<p>To create a program that uses count-controlled loops to produce a given outcome</p> <ul style="list-style-type: none"> - I can design a program that includes count-controlled loops - I can make use of my design to write a program - I can develop my program by debugging it 	<p>To create a project that includes repetition</p> <ul style="list-style-type: none"> - I can refine the algorithm in my design - I can build a program that follows my design - I can evaluate the steps I followed when building my project
<u>Progression</u>	<p>This unit progresses students’ knowledge and understanding of networks in Year 3. In Year 5, they will continue to develop their knowledge and understanding of computing systems and online collaborative working.</p>	<p>This unit progresses students’ knowledge and understanding of digital photography and using digital devices to create media. Following this unit, learners will further develop their image editing skills in Year 5 – Vector drawing.</p>	<p>This unit progresses students’ knowledge and understanding of programming. It progresses from the sequence of commands in a program to using count-controlled loops. Pupils will create algorithms and then implement those algorithms as code.</p>	<p>This unit assumes that learners will have some prior experience of programming. The KS1 NCCE units cover floor robots and ScratchJr, and Scratch is introduced in the Year 3 programming units. However, experience of other languages or environments may also be useful.</p>

<p><u>Curriculum links</u></p>	<p>Computing</p> <ul style="list-style-type: none"> - 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 - Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content - 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 - Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. <p>PSHE (Lesson 6)</p> <ul style="list-style-type: none"> - Evaluating content for honesty and accuracy <p><u>Education for a Connected World links</u></p> <p>Managing online information</p>	<p><u>Computing national curriculum links</u></p> <ul style="list-style-type: none"> - 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 - Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact <p><u>Education for a Connected World links</u></p> <p>Self-image and identity</p> <ul style="list-style-type: none"> - I can describe ways in which people might make themselves look different online 	<p><u>National curriculum links</u></p> <ul style="list-style-type: none"> - Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts - Use sequence, selection, and repetition in programs; work with variables and various forms of input and output - Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs - 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 	<p><u>National curriculum links</u></p> <ul style="list-style-type: none"> - Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts - Use sequence, selection, and repetition in programs; work with variables and various forms of input and output - Use logical reasoning to explain how some simple algorithms work, and to detect and correct errors in algorithms and programs - 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
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	<p>- I can analyse information to make a judgement about probable accuracy, and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others.</p> <p>- I can explain what is meant by fake news, e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't.</p> <p>- I can describe ways of identifying when online content has been commercially sponsored or boosted, (e.g. by commercial companies or by vloggers, content creators, or influencers).</p> <p>- I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful.</p>			
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Year 5

<u>Term/Unit</u>	<u>Advent 1</u> <u>Computer systems and networks – sharing information (NCCE)</u>	<u>Advent 2</u> <u>Creating media - Vector drawing (NCCE)</u>	<u>Lent 1 / 2</u> <u>Data and information – Flat-file databases (NCCE)</u>	<u>Pentecost 1</u> <u>Programming A – selection in physical computing (NCCE)</u>	<u>Pentecost 2</u> <u>Programming B – selection in quizzes (NCCE)</u>
<u>Lesson 1 objectives</u>	To explain that computers can be connected together to form systems	To identify that drawing tools can be used to produce different outcomes	To use a form to record information - I can create a database using cards	To control a simple circuit connected to a computer	To explain how selection is used in computer programs

	<ul style="list-style-type: none"> - I can explain that systems are built using a number of parts - I can describe the input, process, and output of a digital system - I can explain that computer systems communicate with other devices 	<ul style="list-style-type: none"> - I can recognise that vector drawings are made using shapes - I can experiment with the shape and line tools - I can discuss how vector drawings are different from paper-based drawings 	<ul style="list-style-type: none"> - I can explain how information can be recorded - I can order, sort, and group my data cards 	<ul style="list-style-type: none"> - I can create a simple circuit and connect it to a microcontroller - I can program a microcontroller to make an LED switch on - I can explain what an infinite loop does 	<ul style="list-style-type: none"> - I can recall how conditions are used in selection - I can identify conditions in a program - I can modify a condition in a program
<u>Lesson 2 objectives</u>	<p>To recognise the role of computer systems in our lives</p> <ul style="list-style-type: none"> - I can identify tasks that are managed by computer systems - I can identify the human elements of a computer system - I can explain the benefits of a given computer system 	<p>To create a vector drawing by combining shapes</p> <ul style="list-style-type: none"> - I can identify the shapes used to make a vector drawing - I can explain that each element added to a vector drawing is an object - I can move, resize, and rotate objects I have duplicated 	<p>To compare paper and computer-based databases</p> <ul style="list-style-type: none"> - I can explain what a field and a record is in a database - I can navigate a flat-file database to compare different views of information - I can choose which field to sort data by to answer a given question 	<p>To write a program that includes count-controlled loops</p> <ul style="list-style-type: none"> - I can connect more than one output component to a microcontroller - I can use a count-controlled loop to control outputs - I can design sequences that use count-controlled loops 	<p>To relate that a conditional statement connects a condition to an outcome</p> <ul style="list-style-type: none"> - I can use selection in an infinite loop to check a condition - I can identify the condition and outcomes in an 'if... then... else...' statement - I can create a program that uses selection to produce different outcomes
<u>Lesson 3 objectives</u>	<p>To identify how to use a search engine</p> <ul style="list-style-type: none"> - I can make use of a web search to find specific information 	<p>To use tools to achieve a desired effect</p> <ul style="list-style-type: none"> - I can use the zoom tool to help me add detail to my drawings 	<p>To outline how you can answer questions by grouping and then sorting data</p> <ul style="list-style-type: none"> - I can explain that data can be grouped using chosen values - I can group information using a 	<p>To explain that a loop can stop when a condition is met</p>	<p>To explain how selection directs the flow of a program</p> <ul style="list-style-type: none"> - I can explain that program flow can

	<ul style="list-style-type: none"> - I can refine my web search - I can compare results from different search engines 	<ul style="list-style-type: none"> - I can explain how alignment grids and resize handles can be used to improve consistency - I can modify objects to create a new image 	<p>database</p> <ul style="list-style-type: none"> - I can combine grouping and sorting to answer specific questions 	<ul style="list-style-type: none"> - I can explain that a condition is either true or false - I can design a conditional loop - I can program a microcontroller to respond to an input 	<p>branch according to a condition</p> <ul style="list-style-type: none"> - I can design the flow of a program that contains 'if... then... else...' - I can show that a condition can direct program flow in one of two ways
<u>Lesson 4 objectives</u>	<p>To describe how search engines select results</p> <ul style="list-style-type: none"> - I can explain why we need tools to find things online - I can recognise the role of web crawlers in creating an index - I can relate a search term to the search engine's index 	<p>To recognise that vector drawings consist of layers</p> <ul style="list-style-type: none"> - I can identify that each added object creates a new layer in the drawing - I can change the order of layers in a vector drawing - I can use layering to create an image 	<p>To explain that tools can be used to select specific data</p> <ul style="list-style-type: none"> - I can choose which field and value are required to answer a given question - I can outline how 'AND' and 'OR' can be used to refine data selection - I can choose multiple criteria to answer a given question 	<p>To explain that a loop can be used to repeatedly check whether a condition has been met</p> <ul style="list-style-type: none"> - I can explain that a condition being met can start an action - I can identify a condition and an action in my project - I can use selection (an 'if...then...' statement) to direct the flow of a program 	<p>To design a program that uses selection</p> <ul style="list-style-type: none"> - I can outline a given task - I can use a design format to outline my project - I can identify the outcome of user input in an algorithm
<u>Lesson 5 objectives</u>	<p>To explain how search results are ranked</p> <ul style="list-style-type: none"> - I can order a list by rank - I can explain that a search engine follows rules to rank results 	<p>To group objects to make them easier to work with</p> <ul style="list-style-type: none"> - I can copy part of a drawing by duplicating several objects 	<p>To explain that computer programs can be used to compare data visually</p> <ul style="list-style-type: none"> - I can select an appropriate chart to visually compare data - I can refine a chart by selecting a particular filter - I can explain the benefits of using a computer to create charts 	<p>To design a physical project that includes selection</p> <ul style="list-style-type: none"> - I can identify a real-world example of a condition starting an action 	<p>To create a program that uses selection</p> <ul style="list-style-type: none"> - I can implement my algorithm to create the first section of my program - I can test my program

	<ul style="list-style-type: none"> - I can give examples of criteria used by search engines to rank results 	<ul style="list-style-type: none"> - I can recognise when I need to group and ungroup objects - I can reuse a group of objects to further develop my vector drawing 		<ul style="list-style-type: none"> - I can describe what my project will do - I can create a detailed drawing of my project 	<ul style="list-style-type: none"> - I can share my program with others
<u>Lesson 6 objectives</u>	<p>To recognise why the order of results is important, and to whom</p> <ul style="list-style-type: none"> - I can describe some of the ways that search results can be influenced - I can recognise some of the limitations of search engines - I can explain how search engines make money 	<p>To apply what I have learned about vector drawings</p> <ul style="list-style-type: none"> - I can create a vector drawing for a specific purpose - I can reflect on the skills I have used and why I have used them - I can compare vector drawings to freehand paint drawings 	<p>To use a real-world database to answer questions</p> <ul style="list-style-type: none"> - I can ask questions that will need more than one field to answer - I can refine a search in a real-world context - I can present my findings to a group 	<p>To create a program that controls a physical computing project</p> <ul style="list-style-type: none"> - I can write an algorithm that describes what my model will do - I can use selection to produce an intended outcome - I can test and debug my project 	<p>To evaluate my program</p> <ul style="list-style-type: none"> - I can identify ways the program could be improved - I can identify the setup code I need in my program - I can extend my program further
<u>Progression</u>	<p>This unit progresses learners' knowledge and understanding of computing systems.</p>	<p>This unit progresses learners' knowledge and understanding of digital painting and has some links to the Year 3 'Creating media – Desktop publishing' unit, in which learners used digital images. In this Year 5 unit, learners create images that could be used in</p>	<p>This unit progresses learners' knowledge and understanding of why and how information might be stored in a database, and looks at how tools within a database can help us to answer questions about our data. It moves on to demonstrate how a database can help us display data visually, and how real-life databases can be used to help us solve problems. Finally, the learners create a presentation showing understanding and</p>	<p>This unit assumes that learners will have prior experience of programming using a block-based language (eg Scratch) and understand the concepts of sequence and repetition. The National Centre for Computing Education key stage 1 units focus on floor robots and</p>	<p>This unit assumes that learners will have prior experience of programming using block-based construction (e.g. Scratch), understand the concepts of 'sequence' and 'repetition', and have some experience of using 'selection'.</p>

		desktop publishing documents.	application of all the tools used within the unit.	ScratchJr, however, experience of other languages or environments may also be useful.	Ideally, learners will have completed 'Programming A – Selection in physical computing' before undertaking this unit, as this will provide them with the required knowledge of 'selection'.
<u>Curriculum links</u>	National curriculum links - 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 - Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content Education for a Connected World links - I am aware that a person's online activity,	<u>National curriculum links</u> - 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.	<u>National curriculum links</u> - Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content - 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	<u>Computing</u> - Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts - Use sequence, selection, and repetition in programs; work with variables and various forms of input and output - Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs - Select, use, and combine a variety of software	<u>Computing</u> - Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts - use sequence, selection, and repetition in programs; work with variables and various forms of input and output - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in

	<p>history or profile (their 'digital personality') will affect the type of information returned to them in a search or on a social media feed, and how this may be intended to influence their beliefs, actions and choices.</p> <p>- I can explain how search engine rankings are returned and can explain how they can be influenced (e.g. commerce, sponsored results)</p>			<p>(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</p> <p>Science – Electricity (Year 4)</p> <p>- Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches, and buzzers</p> <p>Design and Technology (Key stage 2)</p> <p>Design</p> <p>- Generate, develop, model, and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern</p>	<p>algorithms and programs</p> <p>- 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</p>
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				<p>pieces, and computer-aided design</p> <p>Make</p> <ul style="list-style-type: none">- Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining, and finishing], accurately- Select from and use a wider range of materials and components, including construction materials, textiles, and ingredients, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none">- Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work <p>Technical knowledge</p> <ul style="list-style-type: none">- Understand and use electrical systems in their products [for example, series circuits incorporating switches,	
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				bulbs, buzzers, and motors] - Apply their understanding of computing to program, monitor, and control their products	
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Year 6

<u>Term/Unit</u>	<u>Advent 1 / 2</u> <u>Computer systems and networks – communication / Creating media – Web page creation (NCCE)</u>	<u>Lent 1</u> <u>Data and information – Spreadsheets (NCCE)</u>	<u>Lent 2</u> <u>Programming A – Variables in games (NCCE)</u>	<u>Pentecost 1 / 2</u> <u>Programming B – Sensing (NCCE)</u>
<u>Lesson 1 objectives</u>	<p>To explain the importance of internet addresses</p> <ul style="list-style-type: none"> - I can recognise that data is transferred using agreed methods - I can explain that internet devices have addresses - I can describe how computers use addresses to access websites <p>To recognise how data is transferred across the internet</p> <ul style="list-style-type: none"> - I can identify and explain the main parts of a data packet - I can explain that data is transferred over networks in packets - I can explain that all data transferred over the internet is in packets 	<p>To create a data set in a spreadsheet</p> <ul style="list-style-type: none"> - I can collect data - I can suggest how to structure my data - I can enter data into a spreadsheet 	<p>To define a 'variable' as something that is changeable</p> <ul style="list-style-type: none"> - I can identify examples of information that is variable - I can explain that the way a variable changes can be defined - I can identify that variables can hold numbers or letters 	<p>To create a program to run on a controllable device</p> <ul style="list-style-type: none"> - I can apply my knowledge of programming to a new environment - I can test my program on an emulator - I can transfer my program to a controllable device

<p><u>Lesson 2 objectives</u></p>	<p>To explain how sharing information online can help people to work together</p> <ul style="list-style-type: none"> - I can recognise how to access shared files stored online - I can send information over the internet in different ways - I can explain that the internet allows different media to be shared <p>To evaluate different ways of working together online</p> <ul style="list-style-type: none"> - I can identify different ways of working together online - I can recognise that working together on the internet can be public or private - I can explain how the internet enables effective collaboration 	<p>To build a data set in a spreadsheet</p> <ul style="list-style-type: none"> - I can explain what an item of data is - I can choose an appropriate format for a cell - I can apply an appropriate format to a cell 	<p>To explain why a variable is used in a program</p> <ul style="list-style-type: none"> - I can identify a program variable as a placeholder in memory for a single value - I can explain that a variable has a name and a value - I can recognise that the value of a variable can be changed 	<p>To explain that selection can control the flow of a program</p> <ul style="list-style-type: none"> - I can identify examples of conditions in the real world - I can use a variable in an if, then, else statement to select the flow of a program - I can determine the flow of a program using selection
<p><u>Lesson 3 objectives</u></p>	<p>To recognise how we communicate using technology</p> <ul style="list-style-type: none"> - I can explain the different ways in which people communicate - I can identify that there are a variety of ways to communicate over the internet - I can choose methods of communication to suit particular purposes <p>To evaluate different methods of online communication</p> <ul style="list-style-type: none"> - I can compare different methods of communicating on the internet 	<p>To explain that formulas can be used to produce calculated data</p> <ul style="list-style-type: none"> - I can explain which data types can be used in calculations - I can construct a formula in a spreadsheet - I can identify that changing inputs changes outputs 	<p>To choose how to improve a game by using variables</p> <ul style="list-style-type: none"> - I can decide where in a program to change a variable - I can make use of an event in a program to set a variable - I can recognise that the value of a variable can be used by a program 	<p>To update a variable with a user input</p> <ul style="list-style-type: none"> - I can use a condition to change a variable - I can experiment with different physical inputs - I can explain that checking a variable doesn't change its value

	<ul style="list-style-type: none"> - I can decide when I should and should not share information online - I can explain that communication on the internet may not be private 			
<u>Lesson 4 objectives</u>	<p>To review an existing website and consider its structure</p> <ul style="list-style-type: none"> - I can explore a website - I can discuss the different types of media used on websites - I know that websites are written in HTML <p>To plan the features of a web page</p> <ul style="list-style-type: none"> - I can recognise the common features of a web page - I can suggest media to include on my page - I can draw a web page layout that suits my purpose 	<p>To apply formulas to data</p> <ul style="list-style-type: none"> - I can calculate data using different operations - I can create a formula which includes a range of cells - I can apply a formula to multiple cells by duplicating it 	<p>To design a project that builds on a given example</p> <ul style="list-style-type: none"> - I can choose the artwork for my project - I can create algorithms for my project - I can explain my design choices 	<p>To use an conditional statement to compare a variable to a value</p> <ul style="list-style-type: none"> - I can use an operand (e.g. <=>) in an if, then statement - I can explain the importance of the order of conditions in else, if statements - I can modify a program to achieve a different outcome
<u>Lesson 5 objectives</u>	<p>To consider the ownership and use of images (copyright)</p> <ul style="list-style-type: none"> - I can say why I should use copyright-free images - I can find copyright-free images - I can describe what is meant by the term 'fair use' <p>To recognise the need to preview pages</p> <ul style="list-style-type: none"> - I can add content to my own web page - I can preview what my web page looks like - I can evaluate what my web page looks like on different devices and suggest/make edits. 	<p>To create a spreadsheet to plan an event</p> <ul style="list-style-type: none"> - I can use a spreadsheet to answer questions - I can explain why data should be organised - I can apply a formula to calculate the data I need to answer questions 	<p>To use my design to create a project</p> <ul style="list-style-type: none"> - I can create the artwork for my project - I can choose a name that identifies the role of a variable - I can test the code that I have written 	<p>To design a project that uses inputs and outputs on a controllable device</p> <ul style="list-style-type: none"> - I can decide what variables to include in a project - I can design the algorithm for my project - I can design the program flow for my project

<p><u>Lesson 6 objectives</u></p>	<p>To outline the need for a navigation path</p> <ul style="list-style-type: none"> - I can explain what a navigation path is - I can describe why navigation paths are useful - I can make multiple web pages and link them using hyperlinks <p>To recognise the implications of linking to content owned by other people</p> <ul style="list-style-type: none"> - I can explain the implication of linking to content owned by others - I can create hyperlinks to link to other people's work - I can evaluate the user experience of a website 	<p>To choose suitable ways to present data</p> <ul style="list-style-type: none"> - I can produce a chart - I can use a chart to show the answer to a question - I can suggest when to use a table or chart 	<p>To evaluate my project</p> <ul style="list-style-type: none"> - I can identify ways that my game could be improved - I can use variables to extend my game - I can share my game with others 	<p>To develop a program to use inputs and outputs on a controllable device</p> <ul style="list-style-type: none"> - I can create a program based on my design - I can test my program against my design - I can use a range of approaches to find and fix bugs
<p><u>Progression</u></p>	<p>This unit progresses students' knowledge and understanding of networks in Year 3. In Year 5, they will continue to develop their knowledge and understanding of computing systems and online collaborative working.</p> <hr/> <p>This unit progresses students' knowledge and understanding of the following: digital writing, digital painting, desktop publishing, digital photography, photo editing, and vector drawing.</p>	<p>This unit progresses students' knowledge and understanding of data, and teaches them how to organise and modify data within spreadsheets. Specifically, learners will have experienced data in tables and charts in the Y4 data logging and Y5 branching database units.</p>	<p>This unit assumes that learners have some prior experience of programming in Scratch. Specifically, they should be familiar with the programming constructs of sequence, repetition, and selection. These constructs are covered in the Year 3, 4, and 5 National Centre for Computing Education programming units respectively. Each year group includes at least one unit that focuses on Scratch.</p>	<p>This unit presumes that pupils are already confident in their understanding of sequence, repetition and selection independently within programming. If pupils are not yet ready for this, you may wish to revisit earlier programming units where these constructs are introduced.</p>

<p>Curriculum links</p>	<p>National curriculum links</p> <p>Computing</p> <ul style="list-style-type: none"> - 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 - Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content - 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 - Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. <p>PSHE (Lesson 6)</p> <ul style="list-style-type: none"> - Evaluating content for honesty and accuracy <p>Education for a Connected World links</p> <p>Managing online information</p> <ul style="list-style-type: none"> - I can analyse information to make a judgement about probable accuracy, and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others. 	<p>National curriculum links</p> <ul style="list-style-type: none"> - 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 <p>National curriculum maths links</p> <p>Number – addition, subtraction, multiplication, and division:</p> <ul style="list-style-type: none"> - Solve problems involving addition, subtraction, multiplication, and division <p>Statistics:</p>	<p>National curriculum links</p> <ul style="list-style-type: none"> - Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts - Use sequence, selection, and repetition in programs; work with variables and various forms of input and output - Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs - Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a 	<p>National curriculum links</p> <ul style="list-style-type: none"> - Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts - Use sequence, selection, and repetition in programs; work with variables and various forms of input and output - Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs - 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
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	<ul style="list-style-type: none"> - I can explain what is meant by fake news, e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't. - I can describe ways of identifying when online content has been commercially sponsored or boosted, (e.g. by commercial companies or by vloggers, content creators, or influencers). - I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful. 	<ul style="list-style-type: none"> - Interpret and construct pie charts and line graphs, and use these to solve problems - Calculate and interpret the mean as an average <p><u>Education for a Connected World links</u></p> <p>Managing information online</p> <ul style="list-style-type: none"> - I can describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites) - I can use different search technologies - I can evaluate digital content and can explain how I make choices from search results 	<p>range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information</p>	
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	<p>National curriculum links</p> <ul style="list-style-type: none"> - Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content - 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. - use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour. <p>English links</p> <ul style="list-style-type: none"> - Writing composition: Identifying the audience for and purpose of the writing, selecting the appropriate form, and using other similar writing as models for their own. <p>Education for a Connected World links</p> <p>Online relationships</p> <ul style="list-style-type: none"> - I can use the internet with adult support to communicate with people I know. (EY-7) <p>Managing information online</p> <ul style="list-style-type: none"> - I can navigate online content, websites, or social media feeds using more sophisticated tools to get to the information I want (e.g. menus, sitemaps, breadcrumb-trails, site search functions). (11-14) <p>Copyright and ownership</p>			
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	<ul style="list-style-type: none">- I can explain why copying someone else's work from the internet without permission can cause problems.- I can give examples of what those problems might be.- When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it.- I can give some simple examples.- I can assess and justify when it is acceptable to use the work of others.- I can give examples of content that is permitted to be reused.- I can demonstrate the use of search tools to find and access online content which can be reused by others.- I can demonstrate how to make references to and acknowledge sources I have used from the internet.- I can explain the principles of fair use and apply this to case studies. (11-14)			
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