Computing Progression Map

EYFS

There are no specific ELG that include computing, however our children's journey in computing still starts in the EYFS which is why our progression document starts here. We have access to ipads, beebots and IWB for all children in EYFS and will use these in various ways. Children learn to scan QR codes to link to stories and poems from our knowledge organisers, research using search engines and take photos of models and trips using the Ipads. We ensure our home corner and role play areas have appropriate technology within them so that children can role play with them as they are part of our everyday lives. We use technology to up level and enhance our curriculum where it will enhance our teaching and children's learning. We also ensure children have an understanding of internet and computer safety.

There is no specific ELG that reflects computing and below we have put aspects from all 7 areas that link as this underpins out curriculum and will help support children with technology as they move through KS1 and 2.



	F1	F2	KS1	LKS2	UKS2
Cycle A	**Autumn 1:** What does my world look like? **Autumn 2**: What do you eat on special occasions **Spring 1**: How can we travel? **Spring 2:** What is the weather like around the world? **Summer 1**: What is happening in our great outdoors? **Summer 2**: Who are your local superheroes?	**Autumn 1**: What do you see when you are out and about? **Autumn 2**: What do people celebrate in our community? **Spring 1**: What do you find in the deep, dark woods? **Spring 2**: What can we find at the bottom of the garden? **Summer 1:** What hatches out of an egg? **Summer 2:** What is life like in other countries?	**Autumn 1**: Which direction would you take? **Autumn 2**: Could a zebra live in Mapperley? **Summer 2**: Where do pirates travel?	**Autumn 1:** Can we save the rainforest? **Spring 1:** Why is the Earth so awesome? **Summer 1 & 2:** What's the matter?	**Spring 1 & 2:** Where would you want to build a city?
Cycle B	**Autumn 1:** What does my world look like? **Autumn 2:** What days are special to your family? **Spring 1:** How can we travel? **Spring 2:** How does your garden grow?	(F2 only have a 1 year cycle)	**Spring 1:** How can we protect the Arctic?	**Autumn 2:** Why visit Nottingham? **Summer 2**: Europe/holidays TBC	**Summer 1 & 2:** How do you survive extreme conditions?

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	Summer 1: What is the weather like around the world? **Summer 2:** Where can we go on holiday?				

Computing F1	Knowledge and skills covered linked to a wide range of development matters statements and areas
Throughout the year across all topics	**Communication and Language** • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. **Mathematics** • Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. • Extend and create ABAB patterns – stick, leaf, stick, leaf. • Notice and correct an error in a repeating pattern. • Compare objects, actions and sounds **Understanding the world** • Use all their senses in hands-on exploration of natural materials • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. **Expressive Arts and Design** • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; • Share their creations, explaining the process they have used; • Join different materials and explore different textures. • Create collaboratively, sharing ideas, resources and skills

Computing F2	Knowledge and skills covered linked to a wide range of development matters statements and Early Learning Goals
Throughout the year across all topics	**Communication and Language** • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen **Personal Social Emotional Development** • Working and playing collaboratively and taking turns • Managing their own basic hygiene and personal needs and understanding how to keep healthy and safe **Physical Development** • Use a range of small tools effectively **Mathematics** • Discuss routes and locations, using words like in front of and behind • Begin to describe a sequence of event, real or fictional, using works such as first and then

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	Understanding the world • Understand some important process' and changes in the natural world around them, including the seasons and changing states of matter • Continue to develop positive attitude about the differences between people • Comment on images of familiar situations in the past **Expressive Arts and Design** • Join different materials and explore different textures/ techniques • Develop their own ideas and decide how to express them

National Curriculum

	Computer Science	Information Technology	Digital Literacy
Key Stage 1	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	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 Recognise common uses of information technology beyond school
Key Stage 2	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	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 search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concern about content and contact

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Substantive and Disciplinary Knowledge

Substantive Concept	Definition
Computer Science	The technical design. The design of new software, the solution to computing problems and the development of different ways to use technology
Information Technology	The technical knowledge. The design, use and understanding of hardware and software; computers and electronic systems for storing and using information
Digital literacy	The technical skills. The ability to use information and communication technologies to find, create, evaluate, and communicate information

Disciplinary Concept	Definition
Code	Using and writing codes to produce instructions and algorithms; to solve problems; to test and use logic and sequences against inputs and outputs.
Connect	Being able to safely, efficiently and confidently digitally connect with others.
Communicate	Being able to safely, efficiently and confidently use apps and information technology to communicate ideas.
Collect	Being able to safely, efficiently and confidently find, evaluate, store, sort and use appropriate data.

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KS1 Coverage:

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Cycle A	**1.1 Technology all around us**	**1.2 Digital painting**	**1.3 Moving a robot**	**1.4 Grouping Data**	**1.5 Digital writing**	**1.6 Programming animations**
	Connect Information technology Digital literacy	Communicate Connect Digital literacy	Code Computer science	Collect Information technology	Communicate Connect	Code Computer science
	Interdisciplinary link: History, PE **Link to future learning:** knowledge of parts of a computer and skills needed to effectively use a keyboard and mouse	**Interdisciplinary link:** Art **Link to future learning:** Digital content can be manipulated in Digital Writing topic	**Interdisciplinary link:** Maths **Link to future learning:** Year 2 algorithms	**Interdisciplinary link:** Maths, Science **Link to future learning:** Year 2 pictograms	**Interdisciplinary link:** English **Link to future learning:** Ability to use keyboard and different functions	**Interdisciplinary link:** Art, Maths **Link to future learning:** Year 3 animation
Vocab	technology, computer, laptop, desktop, keyboard, screen, click, drag, mouse, program, type, save, edit, file, cursor, delete, text, Log in, username, password, log out, notification, save	tools, line, shape, fill, undo, erase, brush	Instruction, algorithm, program, debug, direction, arrow, undo, forward, backwards, right turn, left turn	Sort, criteria, data, collate, object	keys	Animation, sound effect
Online Safety	Health, well-being and lifestyle.	Children begin to understand what personal information	Managing Online Information I understand that	Children recognise the Internet as an exciting place to be	Children know who to tell when they see something that	Managing Online Information I understand that

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	Copyright and ownership.	is and who you can share it with, including the need to keep passwords private. They begin to recognise the need to know who they are sharing their learning with online and recognise the difference between real and imaginary online experiences. Digiduck's Big Decision http://kidsmart.org.uk/teachers/ks1/digiduck.aspx	when I am working on an online platform, I may have access to the rest of the internet. I know who to tell when I see something that makes me uncomfortable.	but understand the need for a balance in how they spend their time and make good choices about age appropriate activities. I know that work I create belongs to me I can name my work so that others know it belongs to me	makes them uncomfortable and make sure an adult knows what they are doing.	when I am working on an online platform, I may have access to the rest of the internet. I know who to tell when I see something that makes me uncomfortable. I know that work I create belongs to me I can name my work so that others know it belongs to me
Cycle B	**2.1 Information technology around us**	**2.2 digital photography**	**2.3 Robot Algorithms**	**2.4 Pictograms**	**2.5 Making Music**	**2.6 Programming Quizzes**
	Connect Information technology Digital literacy	Communicate Connect Digital literacy	Code Computer science	Collect Information technology	Communicate Connect	Code Computer science
	Interdisciplinary link: PSHE **Link to future learning:** Yr 3 connecting computers	**Interdisciplinary link:** Art **Link to future learning:** Yr 4 photo editing	**Interdisciplinary link:** Maths, Science **Link to future learning:** Yr 3 Events and actions	**Interdisciplinary link:** Maths, Science **Link to future learning:** Yr 3 branching databases	**Interdisciplinary link:** Music **Link to future learning:** Yr 2 Sequence in music	**Interdisciplinary link:** English **Link to future learning:** Yr 4 repetition in games

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Vocab	technology	tools, line, shape, fill, undo, erase, brush	action, algorithm, bug, character, code block, command, debug/ debugging, input, object, properties, repeat	pictogram, data, collate	sound effects, digitally	action, algorithm, bug, character, code block, command, debug/ debugging, input, object, properties, repeat
Online Safety	Children understand what personal information is and who you can share it with, including the need to keep passwords private. Children begin to recognise the need to know who they are sharing their learning with online and recognise the difference between real and imaginary online experiences. I can identify rules that help keep us safe and healthy in and beyond the home when using technology. I can give some simple examples.	Recognising that images can be changed. Development an awareness that not all pictures they see are 'real'		Children recognise the Internet as an exciting place to be but understand the need for a balance in how they spend their time and make good choices about age appropriate activities.	Children know who to tell when they see something that makes them uncomfortable and make sure an adult knows what they are doing. I know that work I create belongs to me.	Managing Online Information I understand that when I am working on an online platform, I may have access to the rest of the internet. I know who to tell when I see something that makes me uncomfortable. I know that work I create belongs to me I can name my work so that others know it belongs to me

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KS2 Coverage:

Year 3 & 4

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Cycle A	**3.1 Connecting Computer**	**3.2 Stop Frame Animation**	**3.3 Sequencing Sounds**	**3.4 Branching Databases**	**3.5 Desktop publishing**	**3.6 Events and actions in programs**
	Connect Information technology Digital literacy	Communicate Connect Digital literacy	Code Computer science	Collect Information technology	Communicate Connect	Code Computer science
	Interdisciplinary link: Maths - number and place value, Art **Link to future learning:** Learners will explore the internet as a network of networks. Yr 4 the internet	**Interdisciplinary link:** Art, Writing **Link to future learning:** Learners will further develop their video editing skills in Year 5	**Interdisciplinary link:** Maths, Music **Link to future learning:** Yr 4 repetition in shapes	**Interdisciplinary link:** Science, Maths **Link to future learning:** Yr 4 data logging	**Interdisciplinary link:** Art, Maths **Link to future learning:** Yr 4 photo editing	**Interdisciplinary link:** Maths, DT **Link to future learning:** Yr 4 repetition in games
Vocab	password, internet, blog, username, website, webpage, spoof website, PEGI rating	animation, audio, design templates, entrance animation, font, media, presentation, presentation programme, slide, slideshow, stock image, text box, text formatting, transition	Action, algorithm, bug, code block, code design, command, debug/ debugging, design mode, event, If, input, output, repeat, object, properties, timer, computer simulation, selection, variable	questioning, database, construct, contribute, recording, data, data logger, present data data	animation, audio, design templates, entrance animation, font, media, presentation, presentation programme, slide, slideshow, stock image, text box, text formatting, transition	Action, algorithm, bug, code block, code design, command, debug/ debugging, design mode, event, If, input, output, repeat, object, properties, timer, computer simulation, selection, variable

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Online Safety	Children recognise the need to keep personal information and passwords private. They recognise the need for a secure password.	Copyright and ownership Managing online information	Copyright and ownership Managing online information	Children understand that any personal information they put online can be seen and used by others.	Children understand that an adult needs to know what they are doing online and understand how to report concerns, including cyberbullying	Safety features of different apps and games
Cycle B	**4.1 The internet**	**4.2 Audio production**	**4.3 Repetition in shapes**	**4.4 Data logging**	**4.4 Photo editing**	**4.5 Repetition in games**
	Connect Information technology Digital literacy	Communicate Connect Digital literacy	Code Computer science	Collect Information technology	Communicate Connect	Code Computer science
	Interdisciplinary link: PSHE **Link to future learning:** Yr 5 Sharing information	**Interdisciplinary link:** Music **Link to future learning:** Yr 5 Video editing	**Interdisciplinary link:** Maths, Science **Link to future learning:** Y5 Quizzes and yr 4 repetition in games	**Interdisciplinary link:** Science, Maths **Link to future learning:** Yr 5 File databases	**Interdisciplinary link:** Art, PSHE **Link to future learning:** Yr 5 Vector drawing and video editing	**Interdisciplinary link:** Maths, Science, DT **Link to future learning:** Yr 5 Selection in physical computing
Vocab	computer virus, cookies, copyright, digital footprint, email, identity theft, malware, phishing, plagiarism, spam, motherboard, CPU, RAM, Graphics Card, Network, Card, monitor, speakers keyboard and mouse	Pitch, rhythm, pulse, tempo, dynamics, melody, rippler, texture	Logo, BK, FD, RT, LT, REPEAT, SETPC, SETPS, PU, PD	Average, copy and paste, columns, cells, charts, equals tool, formula, formula wizard, move cell tool, random tool, rows, spin tool, spreadsheet, timer	Animation, background, frame, flipbook, onion skinning, stop motion, play, sound, video clip	Action, alert, algorithm, code design, control, command, debug/ debugging, design mode, event, flowchart bug, get input, If, If/Else, input, object, repeat, selection, computer simulation,

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						simulation, timer, variable
Online Safety	Children understand the need for rules to keep them safe when exchanging ideas online. They understand that an adult needs to know what they are doing online and understand how to report concerns, including cyberbullying. Children recognise the need to choose age appropriate games to play on their devices, and when to limit use. They recognise the need to protect their devices from viruses.	Copyright and ownership	Copyright and ownership Managing online information	Keeping data safe Confidentiality	Self-image and identity Children understand that any personal information they put online can be seen and used by others. They recognise that they can use online tools to collaborate and communicate with others and the importance of doing this responsibly, choosing age-appropriate websites. Children recognise the effect their writing or images might have on others.	Staying safe when gaming online

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Year 5 & 6

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Cycle A	**5.1 Sharing Information**	**5.1 Video production**	**5.3 Selection in physical computing**	**5.4 Flat file databases**	**5.5 Introduction to vector graphics**	**5.6 Selection in quizzes**
	Connect Information technology Digital literacy	Communicate Connect Digital literacy	Code Computer science	Collect Information technology	Communicate Connect	Code Computer science
	Interdisciplinary link: DT, Science **Link to future learning:** Yr 6 Computing systems and networks	**Interdisciplinary link:** Music, PSHE, Art **Link to future learning:** Yr 6 Webpage creation	**Interdisciplinary link:** Art, Science, Maths **Link to future learning:** Yr 6 Variables in games	**Interdisciplinary link:** Maths **Link to future learning:** Yr 6 spreadsheets	**Interdisciplinary link:** Art, Maths **Link to future learning:** Yr 6 3D modelling	**Interdisciplinary link:** DT, Writing, History, Geography **Link to future learning:** Yr 6 Variables in games
Vocab	system, hub, information, device, component, collaboration	Video, moving images, sound / audio, camera, lens, record, zoom, angle / movement / pan, effects, transitions, edit	Logic, command, input, output, variable, control, algorithm, program	Spreadsheet, graph, chart, record, data, order, sort, field	Vector, shape, drawing, image, rotate, resize, colour, layer, effect, pixel	Condition, outcome, flow, control, If..., else...
Online Safety	Copyright and ownership	Managing online information Online relationships Online reputation Self-image and identity	Copyright and ownership	Trusted sources of data	Using social media apps safely	Staying safe when on different apps
Cycle B	**6.1 Communication and Collaboration**	**6.2 Webpage creation**	**6.3 Variables in games**	**6.4 Introduction to spreadsheets**	**6.5 3D Modelling**	**6.6 Sensing movement**

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	Connect Communicate Information technology Digital literacy	Communicate Code Computer Science Information technology Digital literacy	Code Computer science Information technology Digital literacy	Collect Information technology Digital literacy	Computer Science Information technology Digital literacy	Code Computer science Information Digital literacy
	Interdisciplinary link: PSHE, Oracy, writing	**Interdisciplinary link:** Writing, Art, History, Geography	**Interdisciplinary link:** Science, Maths	**Interdisciplinary link:** Maths	**Interdisciplinary link:** Art, DT	**Interdisciplinary link:** Science, Maths, DT
Vocab	Search, search engine, address bar, ranking, privacy, security	Website, web pages, page, address, link, HTML, fair use / copyright, home page	Game, variable, control, input, score, algorithm	Spreadsheet, data set, row, column, format, calculation, formula, cell, chart / graph	Physical, virtual, 2D / 3D, view / angle, manipulate, model	Input, process, sense, variable, data flow, device
Online Safety	Managing online information Online reputation Trusting content	Privacy Copyright Inappropriate content	Time spent online / gaming	Trusted source of data	Privacy and security	Staying safe when making friends online (thinking about transition to secondary

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Substantive and Disciplinary Knowledge

Year 1 - Substantive Knowledge

Computer Science	Information Technology	Digital Literacy
I can predict the outcome of a command on a device I can match a command to an outcome I can recall words that can be acted out I can compare forwards and backwards movements I can start a sequence from the same place I can predict the outcome of a sequence involving forwards and backwards commands 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 I can explain what my program should do I can choose the order of commands in a sequence I can debug my program I can compare different programming tools To show that a series of commands can be joined together To identify the effect of changing a value To explain that each sprite has its own instructions To design the parts of a project To use my algorithm to create a program (NC) Understand what algorithms are; how they are implemented as programs on digital devices;	Identify IT in the home and beyond school. Explain how IT benefits us. Recognise how IT can change the way we work. Understand that some digital software can create art. Explain reasoning behind text choices e.g. colour, size and font I can explain what the keys that I have learnt about already do I can say what tool I used to change the text I can compare using a computer with using a pencil and paper I can describe objects using labels I can describe an object I can describe a property of an object I can find objects with similar properties I can choose how to group objects I can describe groups of objects I can record how many objects are in a group I can decide how to group objects to answer a question I can compare groups of objects (NC) Use technology purposefully to create, organise, store, manipulate and retrieve digital content	I can identify rules that help keep us safe and healthy in and beyond the home when using technology I can give some simple examples. I know that the work I create belongs to me. I can name my work so that others know it belongs to me. (NC) Recognise common uses of information technology beyond school (NC) 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

and that programs execute by following precise and unambiguous instructions. (NC) Create and debug simple programs (NC) Use logical reasoning to predict the behaviour of simple programs.		

Year 1 - Disciplinary Knowledge

Code	Connect	Communicate	Collect
I can run a command on a device I can follow an instruction I can give directions I can find the commands to move a sprite I can use commands to move a sprite	Use a mouse in different ways. Use a keyboard to type and edit text. Use a computer to paint a picture. Selecting and opening a programme or application. Saving and closing a programme or application.	I can open a word processor I can recognise keys on a keyboard I can enter text into a computer I can use letter, number, and space keys I can use backspace to remove text I can type capital letters I can identify the toolbar and use bold, italic, and underline I can select a word by double-clicking I can select all of the text by clicking and dragging I can change the font I can use 'undo' to remove change I can write a message on a computer and on paper	I can match objects to groups I can count objects I can group objects I can count a group of objects I can group similar objects I can group objects in more than one way I can count how many objects share a property

Computing Progression Map

Year 2 - Substantive Knowledge

Computer Science	Information Technology	Digital Literacy
I can show the difference in outcomes between two sequences that consist of the same commands I can follow a sequence I can predict the outcome of a sequence I can compare my prediction to the program outcome I can explain the choices I made for my mat design I can identify different routes around my mat I can test my mat to make sure that it is usable 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 (NC) Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. (NC) Create and debug simple programs (NC) Use logical reasoning to predict the behaviour of simple programs.	I can identify examples of computers I can describe some uses of computers I can identify that a computer is a part of information technology I can explain the purpose of information technology in the home I can talk about uses of information technology I can compare types of information technology I can list different uses of information technology I can recognise how to use information technology responsibly I can say how those rules/guides can help me I can identify the choices that I make when using information technology I can explain simple guidance for using information technology in different environments and settings I can enjoy a variety of activities Digital Photography I can sort devices into old and new I can talk about how to take a photograph I can explain the process of taking a good photograph 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 I can explore the effect that light has on a photo I can experiment with different light sources I can recognise that images can be changed I can use a tool to achieve a desired effect	I can recognise that images can be changed. (NC) Recognise common uses of information technology beyond school (NC) 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

	I can explain my choices Making Music I can connect images with sounds I can relate an idea to a piece of music I can identify that music is a sequence of notes I can use a computer to create a musical pattern using three notes I can refine my musical pattern on a computer (NC) Use technology purposefully to create, organise, store, manipulate and retrieve digital content	

Year 2 - Disciplinary Knowledge

Code	**Connect**	**Communicate**	**Collect**
I can follow instructions given by someone else I can choose a series of words that can be enacted as a sequence I can give clear and unambiguous instructions I can create different algorithms for	I can find examples of information technology To recognise that images can be changed	Computing Systems I can open a file I can move and resize images I can demonstrate how information technology is used in a shop I can recognise that information technology can be connected I can explain how information technology helps people Digital Photography I can capture digital photos and talk about my experience I can take photos in both landscape and portrait format I can focus on an object Making Music	Pictograms I can record data in a tally chart I can represent a tally count as a total I can compare totals in a tally chart I can enter data onto a computer I can use a computer to view data in a different format I can use pictograms to answer simple questions about objects I can organise data in a tally chart I can use a tally chart to create a pictogram I can explain what the pictogram shows

		I can use a computer to experiment with pitch and duration a range of sequences (using the same commands) I can use an algorithm to program a sequence on a floor robot I can plan algorithms for different parts of a task I can test and debug each part of the program I can put together the different parts of my program	I can tally objects using a common attribute I can create a pictogram to arrange objects by an attribute I can answer 'more than'/'less than' and 'most/least' questions about an attribute I can choose a suitable attribute to compare people I can collect the data I need I can create a pictogram and draw conclusions from it I can use a computer program to present information in different ways I can share what I have found out using a computer I can give simple examples of why information should not be shared

Year 3 - Substantive Knowledge

Computer Science	Information Technology	Digital Literacy
Understand how event blocks can be used to start a project in a variety of different ways. Learn how to create sequence of commands Understand how to programme movement (NC) Design, write and debug programs that accomplish specific goals, including controlling or	To understand how a digital device works and what parts make up a digital device. Understanding how digital devices help us and how computers are connected. Understand what a branching database is (NC) Use search technologies effectively, appreciate how results are selected and ranked,	Copyright and ownership Explain why copying someone else's work from the internet without permission can cause problems and give examples. When searching on the internet for content to use, explain why you need to consider who owns it.

simulating physical systems; solve problems by decomposing them into smaller parts. (NC) Use sequence, selection and repetition in programs; work with variables and various forms of input and output. (NC) Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs (NC) 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.	and be discerning in evaluating digital content. (NC) 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.	Give examples of content that is permitted to be reused. (NC) Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Year 3 - Disciplinary Knowledge

Code	Connect	Communicate	Collect
Use code to make a musical instrument. Learn how to debug a programme.	Managing online information Use key phrases in search engines Use search technologies effectively. Copyright and ownership Use of search tools to find and access online content which can be reused by others.	Learn how to make a stop-frame animation or other type of presentation. Use text and images to communicate clearly Use return, backspace and shift keys Learn how to create a magazine.	Create a branching database Use a branching database to answer questions

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Year 4 - Substantive Knowledge

Computer Science	Information Technology	Digital Literacy
To identify that accuracy in programming is important To explain what 'repeat' means To decompose a program into parts To develop the use of count-controlled loops in a different programming environment To explain that in programming there are infinite loops and count-controlled loops To develop a design that includes two or more loops which run at the same time To modify an infinite loop in a given program To design a project that includes repetition (NC) Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (NC) Use sequence, selection and repetition in programs; work with variables and various forms of input and output. (NC) Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and program (NC) 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.	To identify that sound can be digitally recorded To explain that a digital recording is stored as a file To explain that audio can be changed through editing To show that different types of audio can be combined and played together To evaluate editing choices made To describe how images can be changed for different uses To make good choices when selecting different tools To evaluate how changes can improve an image To explain that data gathered over time can be used to answer questions To explain that a data logger collects 'data points' from sensors over time To identify the data needed to answer questions (NC) Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. (NC) 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.	To describe how networks physically connect to other networks To recognise how networked devices make up the internet To outline how websites can be shared via the World Wide Web To describe how content can be added and accessed on the World Wide Web To recognise how the content of the WWW is created by people To evaluate the consequences of unreliable content To explain that digital images can be changed To recognise that not all images are real (NC) Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

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Year 4 - Disciplinary Knowledge

Code	Connect	Communicate	Collect
To create a program in a text-based language To modify a count-controlled loop to produce a given outcome To create a program that uses countcontrolled loops to produce a given outcome To create a project that includes repetition	To understand that any personal information they put online can be seen and used by others. To recognise the effect their writing or images might have on others.	To use a digital device to record sound To change the composition of an image	To use a digital device to collect data automatically To use data collected over a long duration to find information To use collected data to answer questions

Year 5 - Substantive Knowledge

Computer Science	Information Technology	Digital Literacy
To explain that computers can be connected together to form systems To recognise the role of computer systems in our lives To recognise how information is transferred over the internet To explain how sharing information online lets people in different places work together To contribute to a shared project online (NC) 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.	To identify that drawing tools can be used to produce different outcomes To recognise that vector drawings consist of layers To recognise video as moving pictures, which can include audio To identify digital devices that can record video To recognise the features of an effective video To identify that video can be improved through reshooting and editing To explain that a loop can stop when a condition is met, eg number of times To conclude that a loop can be used to repeatedly check whether a condition has been met	To write a program that includes countcontrolled loops To explain how selection directs the flow of a program (NC) design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. (NC) use sequence, selection, and repetition in programs; work with variables and various forms of input and output. (NC) use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs To consider the impact of the choices made when making and sharing a video To evaluate different ways of working together online To capture video using a

(NC) 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	To explain how selection is used in computer programs (NC) 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	digital device (NC) use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Year 5 - Disciplinary Knowledge

Code	Connect	Communicate	Collect
To write a program that includes countcontrolled loops To explain how selection directs the flow of a program (NC) design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. (NC) use sequence, selection, and repetition in programs; work with variables and various forms of input and output. (NC) use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	To consider the impact of the choices made when making and sharing a video	To evaluate different ways of working together online	To capture video using a digital device (NC) 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

Year 6 - Substantive Knowledge

Computer Science	Information Technology	Digital Literacy
To construct a digital 3D model of a physical object design a digital model by combining 3D objects To develop and improve a digital 3D model To plan the features of a web page To define a 'variable' as something that is changeable To create a program to run on a controllable device (NC) use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	To explain how search results are ranked To compare working digitally with 2D and 3D graphics To identify that physical objects can be broken down into a collection of 3D shapes To review an existing website and consider its structure To explain that objects can be described using data To explain why a variable is used in a program To explain that selection can control the flow of a program (NC) 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	To recognise why the order of results is important, and to whom To use a computer to create and manipulate threedimensional (3D) digital objects To identify questions which can be answered using data To create a spreadsheet to plan an event To choose how to improve a game by using variables To design a project that uses inputs and outputs on a controllable device (NC) 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

Year 6 - Disciplinary Knowledge

Code	Connect	Communicate	Collect
To design a [variable game] project that builds on a given example To use my design to create a project To evaluate my project	To identify how to use a search engine To consider the ownership and use of images (copyright)	To recognise how we communicate using technology To recognise the need to preview pages	To describe how search engines select results To explain that formula can be used to produce calculated data

Computing Progression Map

To update a variable with a user input To use an conditional statement to compare a variable to a value To develop a program to use inputs and outputs on a controllable device (NC) use sequence, selection, and repetition in programs; work with variables and various forms of input and output. (NC) use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	(NC) use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. (NC) use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	To outline the need for a navigation path To recognise the implications of linking to content owned by other people To choose suitable ways to present data (NC) 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. (NC) use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	To apply formulas to data, including duplicating