

C - Courage	A - Achievement	Y – Your Actions	T - Tolerance	O – Our World	N - Nurturing
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## Cayton School Computing Progression Map

*Learn from yesterday, seek today and aim for tomorrow*

## Computing Progression Documents

Intent								
Cayton School Vision	<b>“To deliver the highest standards enabling all children and adults to grow, learn and work together where laughter, respect, trust and harmony are highly valued”</b>							
Cayton School principles	Broad and Balanced, each subject has sufficient time to contribute effectively to learning	Sequential and Progressive	Engaging and Interesting	Ambitious and Progressive	Every child awarded the same offer	Prior Learning and Knowledge on opportunities	Making Life-long Learners	Reading a priority – whole school reading culture
Why Cayton School Curriculum is unique	We have written our curriculum with a strong emphasis towards Local: Community, History, Geography, Culture and Faith	Our Curriculum has a rich knowledge base and strong skills development	A strong emphasis on vocabulary allows children to learn and apply words in a variety of contexts	Cultural Capital opportunities support children to accomplish the very best they can be	PSHE is a thread that runs throughout our Curriculum	We have written the Curriculum to support children to develop lively, enquiring and creative minds	We understand the importance of a healthy body, healthy mind which is prioritised throughout our Curriculum	
<b>Intent</b>	Our overriding belief at Cayton School is that our role as Educators is to ensure children are prepared for the future and have the skills to be life long, curious learners. We passionately believe that life skills as well as academic success is vitally important. Our curriculum is designed to ensure life-long learners who are kind, confident and successful. Our designing of our bespoke curriculum was underpinned by evidence and research in order to challenge thinking and encourage enquiry.							
<b>Cayton Awards Culture</b>	<b>C - Courage</b>	<b>A - Achievement</b>	<b>Y – Your Actions</b>	<b>T - Tolerance</b>	<b>O – Our World</b>	<b>N - Nurturing</b>		
Implementation								
Delivering the Curriculum	Centrist pedagogical approach	A strong emphasis on positive behaviour through Cayton Awards	A whole school approach to PSHE	Opportunities for collaborative and shared work	The importance of Reading is implemented throughout our Curriculum offer	Every class has a Cayton, Cultural, Capital, Citizenship and community Passport throughout school		
Evidence Based Research	Metacognition 'learning to learn' using scaffolding strategies EEF evidence		Language skills at the centre of Quality First Teaching Rose Report/ EEF	English Curriculum delivery has a strong emphasis on vocabulary and reading Reading spine Doug Lemov		The power of 'empowerment' Dr Raj Persaud/ Hertzog Performance=Skills x Motivation		
Pedagogy	Enquiry based learning – Enquiry based driver questions		Teacher centred	Holistic approach		Togetherness		Well-being
Processes and Procedures	A strong focus on assessment for learning throughout school	Training and empowerment of subject leaders to lead their subjects		Clear guidance and structure in teaching core subjects	Robust assessment of core and foundation subjects throughout school		Clear rules and routines set out to support all children	
<b>Implementation</b>	Professional Development and Empowerment of staff supports pedagogical theories and research and equips all teachers to confidently deliver and implement the Curriculum. We implement clear structures and teaching sequences, which underpin the teaching of Reading, Writing and Mathematics. The whole curriculum is taught through 'Metacognitive' pedagogy which encourages children to 'learn to learn' and self-regulate, thus enabling them to question their learning.							
<b>Cayton Awards Culture</b>	<b>C - Courage</b>	<b>A - Achievement</b>	<b>Y – Your Actions</b>	<b>T - Tolerance</b>	<b>O – Our World</b>	<b>N - Nurturing</b>		
Impact								
What 'success' looks like at Cayton School	Children develop self-confidence and self-esteem	High Quality Outcomes for all children based on their starting points		Strong feeling of Community	A rich and diverse school culture	Children prepared for life-long learning		
Ambition	Children and adults are proud of themselves and proud to be part of the Cayton Community	Progress and attainment at each Key Stage shows outcomes as being above the 'National Average'		Children and adults are kind, courteous and confident	Adults are a positive role model in all that they do and say	Children are self -regulated in their learning and take responsibility for their actions		
Evidence	Outcomes at each stage of learning	Pupil and staff voice		Impact of school development priorities	Stakeholder feedback	Formal and Informal assessments		A positive Cayton Awards Culture throughout school
<b>Cayton Awards</b>	<b>C - Courage</b>	<b>A - Achievement</b>	<b>Y – Your Actions</b>	<b>T - Tolerance</b>	<b>O – Our World</b>	<b>N - Nurturing</b>		

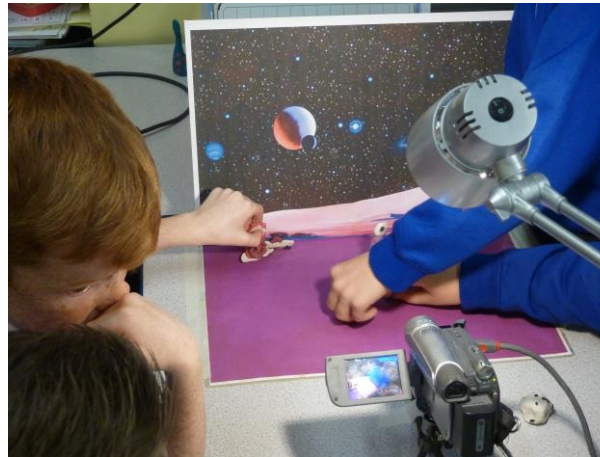
## Computing Progression Documents

Culture

### Developing Technology users at Cayton School

#### A Technology user at Cayton School will have.....

- Competence in coding for a variety of practical and inventive purposes, including the application of ideas within other subjects.
- The ability to connect with others safely and respectfully, understanding the need to act within the law and with moral and ethical integrity.
- An understanding of the connected nature of devices.
- The ability to communicate ideas well by using applications and devices throughout the curriculum.
- The ability to collect, organise and manipulate data effectively.



## Computing Progression Documents

### SEND

At Cayton School, we foster and promote a culture of inclusion where every child has an equal opportunity to succeed and become the best that they can be. The Computing Subject Leader and teachers have a shared responsibility to ensure that every child succeeds and are given the abilities to be able to progress in their knowledge, skills and understanding of each subject. Our curriculum extends beyond subject knowledge to include social and emotional competencies and communication skills, which we believe are crucial in order to ensure that children are happy and successful in school and their personal life. As such, we want children to have the knowledge that equips them with the skills to make a positive contribution to society following their education.

Our SEND learners are fully involved within our mainstream curriculum using high quality adaptive teaching and learning strategies that provide access for all. This is to ensure that they access a bespoke curriculum and are never limited in their abilities. Teachers provide tools and scaffolds to aid children to achieve and where possible reduce these as the skills develop over time. Some of these scaffolds may include:

- Pre-teaching group work looking at specific vocabulary or concepts that the children may find tricky.
- Small group support of an adult to guide them through the activities they are given.
- 1:1 support where and when necessary.
- Word mats that explain some of the key concepts or vocabulary to help the children understand further.
- Knowledge organisers to start units to refer back to if they are unsure.
- Further resources around the classroom to help further understand concepts.
- Adapted worksheets to help with the understanding of wording or explanations.

As a result of the above provision, children will:

- Feel safe, secure and cared for
- Show confidence and resilience in the classroom
- Demonstrate high levels of engagement in activities
- Make progress from their starting points
- Develop independence and skills to support them throughout life
- Work collaboratively with their peers on a shared goal

### Computing and SEND

Learning materials are incorporated that are accessible for learners of all abilities. For learners with special educational needs and disabilities, specific resources or approaches may be required to enable them to access the curriculum. Teachers consider what barriers learners may have within a lesson and embed support strategies to help them overcome these. Teachers scaffold learning so that learners benefit from support during initial phases of learning. Tasks are adapted to make the curriculum accessible to all. For example, tools such as CodeJumper and Blocks4All can be used for learners who are visually impaired.

- Computational thinking skills are at the heart of the Computing curriculum. Teaching these provides pupils with problem-solving skills that can be applied across the curriculum. For example being able to decompose and debug a problem can be applied in maths as well as computing; sequencing steps in an algorithm can be applied to essential life skills.
- Computing provides creative, accessible ways of reinforcing learning across the curriculum, for example in literacy and numeracy, or to support priorities such as social skills, motor skills communication. This ensures that lessons remain relevant and meaningful to pupils.
- Technology can help pupils with special educational needs and disabilities to access learning, information and leisure activities: learning more about how this technology works through Computing can ensure pupils use it safely and responsibly

## Intent – Implementation – Impact

### Ambition

At Cayton School, it is our intention to enable children to find, explore, analyse, exchange and present information. We also focus on developing the skills necessary for children to be able to use information in an effective way. **We want children to know more, remember more and understand more in computing so that they leave Cayton School computer literate.** Computing skills are a major factor in enabling children to be confident, creative and independent learners and it is our intention that children have every opportunity available to allow them to achieve this. We intend to build a computing curriculum that develops pupil's learning and results in the acquisition of knowledge of the world around them that ensures all pupils can understand and apply the fundamental principles and concepts of computer science. This includes logic, algorithms and data representation whereby children can analyse problems in computational terms and have repeated practical experience of writing computer programs in order to solve such problems. **We intend to build a computing curriculum that prepares pupils to live safely in an increasingly digital society** where children can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems.

# Computing Progression Documents

In planning and guiding what children learn, practitioners must reflect on the different rates at which children are developing and adjust their practice appropriately. Three characteristics of effective teaching and learning are:

- playing and exploring - children investigate and experience things, and 'have a go'
- active learning - children concentrate and keep on trying if they encounter difficulties, and enjoy achievements
- creating and thinking critically - children have and develop their own ideas, make links between ideas, and develop strategies for doing things

In addition, the Prime Areas of Learning (Personal, Social and Emotional Development, Communication and Language and Physical Development) underpin and are an integral part of children's learning in all areas.

## EYFS (Statutory)

This document demonstrates which statements from the 2023 Development Matters are prerequisite skills for computing within the national curriculum. The table below outlines the most relevant statements taken from the Early Learning Goals in the EYFS statutory framework and the Development Matters age ranges for Three and Four-Year-Olds and Reception to match the programme of study for computing. The most relevant statements for computing are taken from the following areas of learning:

• Personal, Social and Emotional Development • Physical Development • Understanding the World • Expressive Arts and Design

Three and Four-Year-Olds	Personal, Social and Emotional Development		Remember rules without needing an adult to remind them.
	Physical Development		Match their developing physical skills to tasks and activities in the setting.
	Understanding the World		Explore how things work.
EYFS	Personal, Social and Emotional Development		Show resilience and perseverance in the face of a challenge. Know and talk about the different factors that support their overall health and wellbeing: - sensible amounts of 'screen time'.
	Physical Development		Develop their small motor skills so that they can use a range of tools competently, safely and confidently
	Expressive Arts and Design		Explore, use and refine a variety of artistic effects to express their ideas and feelings.
ELG	Personal, Social and Emotional Development	Managing Self	Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. Explain the reasons for rules, Know right from wrong and try to behave accordingly.
	Expressive Arts and Design	Creating with Materials	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

## Intent

## Computing Progression Documents

### Early Years Foundation Stage – Moving to Barefoot throughout this year (2024 2025)

	Unit	Early Learning Goals	Outcomes
1	iMake Music	ELG16 – Creating with materials; ELG17 – Being imaginative & Expressive	Creating simple musical compositions using digital tools
2	iMake Media	ELG16 – Creating with materials; ELG17 – Being imaginative & Expressive	Capturing images and use software to combine images with text & effects
3	iMake Videos	ELG16 – Creating with materials; ELG17 – Being imaginative & Expressive	Using a camera/tablet to record moving images
4	iCan Play	ELG1 – Listening & Understanding; ELG7 – Fine Motor Skills; ELG5 – Building relationships	Taking turns playing games both on and offline
5	iCan Move	ELG1 – Listening & Understanding; ELG7 – Fine Motor Skills; ELG5 – Building relationships	Tracing paths; The children use a mouse to play computer games
6	iCan Direct	ELG1 – Listening & Understanding; ELG7 – Fine Motor Skills; ELG5 – Building relationships	Using simple directional language to navigate around a set of obstacles
7	iFind Patterns	ELG1 – Listening & Understanding; ELG12 – Number Pattern	Identifying and talk about patterns; the children create a repeating pattern
8	iAm Logical	ELG1 – Listening & Understanding; ELG11 - Number	Sorting on criteria
9	iOrganise Data	ELG1 – Listening & Understanding; ELG11 - Number	Collecting data and creating simple graphs
10	iSearch Online	ELG1 – Listening & Understanding; ELG9 - Reading	Making simple searches for data organised alphabetically
11	iCan Sequence	ELG1 – Listening & Understanding; ELG11 - Number	Sequencing simple instructions to make something
12	iCan Program	ELG1 – Listening & Understanding; ELG7 – Fine Motor Skills	Giving sequences of commands to a programmable toy
13	iStay Safe	ELG1 – Listening & Understanding; ELG4 – Managing Self	Exploring and explaining simple rules for keeping safe online
14	iMake Art	ELG16 – Creating with Materials	Finding and making collages of 2D shapes
15	iCan Control	ELG1 – Listening & Understanding; ELG11 - Number	Programming a toy to move along a number line
16	iCan Sort	ELG15 – The Natural World	Making predictions about sorting criteria, sort and order objects
17	iCan Turn	ELG1 – Listening & Understanding; ELG2 - Speaking	Designing trails & programming toys to move along a trail with turns
18	iCan Animate	ELG1 – Listening & Understanding; ELG2 – Speaking; ELG17 – Being imaginative & Expressive	Capturing images and animating them using digital tools
19	iTell Stories	ELG1 – Listening & Understanding; ELG2 – Speaking; ELG17 – Being imaginative & Expressive	Recounting a classic tale using digital book creation tools
20	iSend Email	ELG9 – Reading; ELG10 – Writing;	Composing and sending simple emails to a fictional character
21	iCan Model	ELG1 – Listening & Understanding	Using digital tools to explore computer models
22	iMake Pictograms	ELG1 – Listening and Understanding; ELG11 – Number	Collecting and organising data into simple pictograms
23	iCan Surf	ELG16 – Creating with materials	Finding, printing and colouring images
24	iCan Report	ELG16 – Creating with materials; ELG17 – Being imaginative & Expressive	Combing text and images to make a class/school newsletter
25	iCatch Aliens!	ELG16 – Creating with Materials	Using an Augmented Reality app to find hidden aliens
26	iMake Algorithms	ELG1 - Listening and Understanding; ELG2 - Speaking; ELG9 - Reading	Creating algorithms and flowcharts for classic nursery rhymes
27	iGuess Beasts	ELG7 – Fine Motor Skills; ELG11 - Number; ELG14 – People Communities & Culture	Scanning and creating QR (Quick Response) Codes
28	iMake Pixel Art	ELG7 – Fine Motor Skills; ELG11 - Number; ELG16 – Creating with materials; ELG17 – Being imaginative & Expressive	An introduction to image representation

### Possible iCompute units

# Computing Progression Documents

## Key Stage One

### Purpose of Study

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

### National Curriculum

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology

- |  |   |
|--|---|
|  | <ul style="list-style-type: none"> <li>• understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions</li> </ul>  |
|  | <ul style="list-style-type: none"> <li>• create and debug simple programs</li> </ul>  |
|  | <ul style="list-style-type: none"> <li>• use logical reasoning to predict the behaviour of simple programs</li> </ul>   |
|  | <ul style="list-style-type: none"> <li>• use technology purposefully to create, organise, store, manipulate and retrieve digital content</li> </ul>   |
|  | <ul style="list-style-type: none"> <li>• recognise common uses of information technology beyond school</li> </ul>   |
|  | <ul style="list-style-type: none"> <li>• 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</li> </ul> |

## Computing Progression Documents

### Key Stage Two

#### Purpose of Study

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

#### National Curriculum

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology

- |  |   |
|--|---|
|  | <ul style="list-style-type: none"> <li>• use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> </ul>  |
|  | <ul style="list-style-type: none"> <li>• design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> </ul>  |
|  | <ul style="list-style-type: none"> <li>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> </ul>  |
|  | <ul style="list-style-type: none"> <li>• 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</li> </ul>   |
|  | <ul style="list-style-type: none"> <li>• use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li> </ul>  |
|  | <ul style="list-style-type: none"> <li>• use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li> <li>•</li> </ul>   |
|  | <ul style="list-style-type: none"> <li>• 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.</li> </ul> |



Year 1 <b>Computing Progression Documents</b>						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Computing systems and networks Technology around us	Creating media Digital painting	Programming A Moving a robot	Data and information Grouping data	Creating media Digital writing	Programming B Programming animations
Prior Learning & Progression	This unit progresses students' knowledge and understanding of technology and how they interact with it in school from the EYFS setting. Learners will build their knowledge of parts of a computer and develop the basic skills needed to effectively use a computer keyboard and mouse. This unit directly precedes the Y2 Computer systems and networks unit, IT around us.	Learners should be familiar with: <ul style="list-style-type: none"> <li>• How to switch their device on</li> <li>• Usernames</li> <li>• Passwords</li> </ul> For an introduction to keyboard and mouse skills, learners may benefit from completing the Year 1 Computing Systems & Networks unit prior to this unit.	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.	This unit will introduce learners to data and information. It will introduce learners to the concept of labelling and grouping objects based on their properties. Learners will develop their understanding that objects can be given labels, which is fundamental to their future learning concerning databases and spreadsheets. In addition, learners will begin to improve their ability to use dragging and dropping skills on a device. Following this unit, in year 2, learners will present data graphically in pictograms.	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.	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
National Curriculum Substantive Knowledge	Learners will develop their understanding of technology and how it can help them in their everyday lives. They will start to become familiar with the different components of a computer by developing their keyboard and mouse skills. Learners will also consider how to use technology responsibly and who to ask for help if they see any content or comments online that make them feel uncomfortable.	Learners will develop their understanding of a range of tools used for digital painting. They then use these tools to create their own digital paintings, while gaining inspiration from a range of artists' work. The unit concludes with learners considering their preferences when painting with and without the use of digital devices	Learners will be introduced to early programming concepts. Learners will explore using individual commands, both with other learners and as part of a computer program. They will identify what each command for the floor robot does, and use that knowledge to start predicting the outcome of programs. The unit is paced to ensure time is spent on all aspects of programming, and builds knowledge in a structured manner. Learners are also introduced to the early stages of program design through the introduction of algorithms.	This unit introduces learners to data and information. Labelling, grouping, and searching are important aspects of data and information. Searching is a common operation in many applications, and requires an understanding that to search data, it must have labels. This unit of work focuses on assigning data (images) with different labels in order to demonstrate how computers are able to group and present data.	Learners will develop their understanding of the various aspects of using a computer to create and manipulate text. They will become more familiar with using a keyboard and mouse to enter and remove text. Learners will also consider how to change the look of their text, and will be able to justify their reasoning in making these changes. Finally, learners will consider the differences between using a computer to create text, and writing text on paper. They will be able to explain which method they prefer and explain their reasoning for choosing this.	Learners will be introduced to on-screen programming through ScratchJr. Learners will explore the way a project looks by investigating sprites and backgrounds. They will use programming blocks to use, modify, and create programs. Learners will also be introduced to the early stages of program design through the introduction of algorithms.
Teach Compute Sessions/  Key Skills and Concepts	(lessons 1-6) 1. To <b>identify</b> technology 2. To identify a computer and its main parts 3. To <b>use a mouse</b> in different ways 4. To use a keyboard to type on a computer 5. To use the keyboard to edit text 6. To <b>create rules</b> for using technology responsibly	(lessons 1-6) 1. To <b>describe</b> what different freehand tools do 2. To <b>use</b> the shape tool and the line tools 3. To make careful choices when painting a digital picture 4. To <b>explain</b> why I chose the tools I used 5. To <b>use</b> a computer on my own to paint a picture 6. To <b>compare painting</b> a picture on a computer and on paper	(lessons 1-6) 1. To <b>explain</b> what a given command will do 2. To <b>act out</b> a given word 3. To <b>combine</b> 'forwards' and 'backwards' commands to make a sequence 4. To combine four direction commands to make sequences 5. To <b>plan</b> a simple program 6. To find more than one solution to a problem	(lessons 1-6) 1. To label objects 2. To <b>identify</b> that objects can be counted 3. To describe objects in different ways 4. To count objects with the same properties 5. To <b>compare</b> groups of objects 6. To answer questions	(lessons 1-6) 1. To <b>use</b> a computer to write 2. To <b>add and remove</b> text on a computer 3. To <b>identify</b> that the look of text can be changed on a computer 4. To <b>make</b> careful choices when changing text 5. To <b>explain</b> why I used the tools that I chose 6. To <b>compare</b> typing on a computer to writing on paper	(lessons 1-6) 1. To <b>choose</b> a command for a given purpose 2. To show that a series of commands can be joined together 3. To <b>identify</b> the effect of changing a value 4. To <b>design</b> the parts of a project 5. To design the parts of a project 6. To use my algorithm to create a program
Sticky Knowledge	To name 3 types of technology (computer, iPad, traffic lights, laptop, heating system). To locate the on switch of a desktop PC. To know that the shift key creates a capital letter.	To know the icons for the shape and line tools to draw a picture. To explain how to change the colour and size of the paintbrush.	To know the 4 commands for the Beebot in a sequence including forwards/backwards. To know when and how to debug programs.	To name a group of objects using a label according to property (including size, shape or colour).	To know that the space key makes a space and backspace deletes text. To know that where the font and size icons are and what they change font style and make it bigger or smaller.	To explain what a start block does in a program. To name directional blocks which move a sprite.
Assessment Opportunities	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. The learning objective and success criteria are introduced in the slide deck at the beginning of each lesson and then reviewed at the end	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan.	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan.	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan.	<b>Formative Assessment</b> Assessment opportunities are provided throughout each of the lesson plan documents and the learning objectives and success criteria can be used to observe learners' progress for summative assessment.	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. The learning objective and success criteria are introduced in the slide deck at the beginning of each lesson and then reviewed at the end.
Vocabulary	technology, computer, mouse, trackpad, keyboard, screen, double-click, typing	paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers	Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program	object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same	word processor, keyboard, keys, letters, type, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, mouse, select, font, undo, redo, format, compare, typing, writing	ScratchJr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design
On-line Safety	<b>Self-Image and Identity</b> I can recognise that there may be people online who could make someone feel sad, embarrassed or upset.	<b>On-Line Reputation</b> I can recognise that information can stay online and could be copied.	<b>On-Line Bullying</b> I can describe how to behave online in ways that do not upset others and can give examples.	<b>Managing On-line Information</b> I can give simple examples of how to find information using digital technologies, e.g.	<b>Health well-being and Lifestyle</b> I can explain rules to keep myself safe when using technology both in and beyond the home.	<b>Privacy and Security</b> I can explain that passwords are used to protect information, accounts and devices.

## Computing Progression Documents

<p>Taken from <b>'Education for a connected World'</b> UK Council for Internet Safety.</p>	<p>If something happens that makes me feel sad, worried, uncomfortable or frightened I can give examples of when and how to speak to an adult I can trust and how they can help.</p> <p><b>On-line Relationships</b> I can give examples of when I should ask permission to do something online and explain why this is important. I can use the internet with adult support to communicate with people I know (e.g. video call apps or services). I can explain why it is important to be considerate and kind to people online and to respect their choices. I can explain why things one person finds funny or sad online may not always be seen in the same way by others.</p>	<p>I can describe what information I should not put online without asking a trusted adult first.</p>		<p>search engines, voice activated searching). I know / understand that we can encounter a range of things online including things we like and don't like as well as things which are real or make believe / a joke. I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable worried or frightened.</p>		<p>I can recognise more detailed examples of information that is personal to someone (e.g. where someone lives and goes to school, family names). I can explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.</p> <p><b>Copyright and Ownership</b> I can explain why work I create using technology belongs to me. I can say why it belongs to me (e.g. 'I designed it' or 'I filmed it'). I can save my work under a suitable title / name so that others know it belongs to me (e.g. filename, name on content). I understand that work created by others does not belong to me even if I save a copy.</p>
<p>SEE TEACHER'S WEEKLY PLANS FOR CORE KNOWLEDGE AND ACTIVITY DETAILS</p>						

Year 2 Computing Progression Documents						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Computing systems and networks IT around us	Creating media Digital Photography	Programming A Robot Algorithms	Data and information Pictograms	Creating media Digital Music	Programming B Programming quizzes
Prior Learning & Progression	This unit progresses learners' understanding of technology and how they interact with it. They will develop this understanding to become familiar with the term information technology and will be able to identify common features of IT. This unit also builds on the learners' understanding of using technology safely and responsibly.	This unit begins the learners' understanding of how photos are captured and can be manipulated for different purposes. Following this unit, learners will develop their photo editing skills in Year 4.	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 students' knowledge and understanding of grouping data. It builds on the Year 1 Data and Information unit where learners labelled objects and grouped them based on different properties. In Year 3 learners develop their understanding of attributes (properties) using branching databases to structure data according to different object attributes.	Learners should have experience of making choices on a tablet/computer, and they should be able to navigate within an application. Learners should also have some experience of patterns. This unit progresses students' knowledge through listening to music and considering how music can affect how we think and feel. Learners will then purposefully create rhythm patterns and music.	This unit initially recaps on learning from the Year 1 ScratchJr unit 'Programming B – Programming animations'. This unit progresses learners' knowledge and understanding of instructions in sequences and the use of logical reasoning to predict outcomes.
National Curriculum Substantive Knowledge	Learners will develop their understanding of what information technology (IT) is and will begin to identify examples. They will discuss where they have seen IT in school and beyond, in settings such as shops, hospitals, and libraries. Learners will then investigate how IT improves our world, and they will learn about the importance of using IT responsibly.	Learners will learn to recognise that different devices can be used to capture photographs and will gain experience capturing, editing, and improving photos. Finally, they will use this knowledge to recognise that images they see may not be real.	This unit develops learners' understanding of instructions in sequences and the use of logical reasoning to predict outcomes. Learners will use given commands in different orders to investigate how the order affects the outcome. They will also learn about design in programming. They will develop artwork and test it for use in a program. They will design algorithms and then test those algorithms as programs and debug them.	Learners will begin to understand what the term data means and how data can be collected in the form of a tally chart. They will learn the term 'attribute' and use this to help them organise data. They will then progress onto presenting data visually using software. Learners will use the data presented to answer questions.	In this unit, learners will listen to a variety of pieces of music and consider how music can make them think and feel. Learners will compare creating music digitally and non-digitally. Learners will look at patterns and purposefully create music.	Learners begin to understand that sequences of commands have an outcome, and make predictions based on their learning. They use and modify designs to create their own quiz questions in ScratchJr, and realise these designs in ScratchJr using blocks of code. Finally, learners evaluate their work and make improvements to their programming projects.
Teach Compute Sessions/  Key Skills and Concepts	(lessons 1-6) 1. To <b>recognise</b> the uses and features of information technology 2. To identify the uses of information technology in the school 3. To <b>identify information</b> technology beyond school 4. To <b>explain</b> how information technology helps us 5. To explain how to use information technology safely 6. To <b>recognise</b> that choices are made when using information technology	(lessons 1-6) 1. To <b>use</b> a digital device to take a photograph 2. To <b>make</b> choices when taking a photograph 3. To <b>describe</b> what makes a good photograph 4. To <b>decide</b> how photographs can be improved 5. To use tools to change an image 6. To <b>recognise</b> that photos can be changed	(lessons 1-6) 1. To <b>describe</b> a series of instructions as a sequence 2. To <b>explain</b> what happens when we change the order of instructions 3. To use logical reasoning to predict the outcome of a program 4. To explain that programming projects can have code and artwork 5. To <b>design</b> an algorithm 6. To create and debug a program that I have written	(lessons 1-6) 1. To <b>recognise</b> that we can count and compare objects using tally charts 2. To recognise that objects can be represented as pictures 3. To <b>create</b> a pictogram 4. To select objects by attribute and make comparisons 5. To recognise that people can be described by attributes 6. To <b>explain</b> that we can present information using a computer	(lessons 1-6) 1. To say how music can make us feel 2. To <b>identify</b> that there are patterns in music 3. To <b>experiment</b> with sound using a computer 4. To <b>use a computer</b> to create a musical pattern 5. To <b>create music</b> for a purpose 6. To <b>review and refine</b> our computer work	(lessons 1-6) 1. To <b>explain</b> that a sequence of commands has a start 2. To explain that a sequence of commands has an outcome 3. To <b>create</b> a program using a given design 4. To <b>change</b> a given design 5. To <b>create</b> a program using my own design 6. To <b>decide</b> how my project can be improved
Sticky Knowledge	To name examples of how I.T helps improve our world e.g. traffic lights and how they keep us safe on the road.	To be able to add text and an image. To be able to save and retrieve work. To be able to use the scroll bar on webpages.	Explain how we can present information using a computer. To show how music is made from a series of notes.	To understand use/read a tally chart. To use a program to create a pictogram.	To write a programme for the Beebot using the 4 commands in a sequence including forwards/backwards/left turn/right turn. To know when and how to debug programs. To know a series of instructions (usually on a computer) is called an Algorithm.	To be able to move the sprite and manipulate the controls by setting conditions e.g. jump high. To change the background on Scratch. To create 2 sprites and make a conversation happen between them. To know how to save and retrieve projects. To say 1 way a project can be improved.
Assessment Opportunities	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. The learning objective and success criteria are introduced in the slide deck at the beginning of each lesson and then reviewed at the end.	<b>Formative Assessment</b> Assessment opportunities are provided throughout each of the lesson plan documents and the learning objectives and success criteria can be used to observe learners' progress for summative assessment.	<b>Formative Assessment</b> Assessment opportunities are provided in each of the lesson plan documents, and the learning objectives and success criteria can be used to observe learners' progress for summative assessment.	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan.	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. The learning objective and success criteria are introduced in the slide deck at the beginning of each lesson and then reviewed at the end.	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan.
Vocabulary	Information technology (IT), computer, barcode, scanner/scan	device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting,	instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition	more than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total, pictogram, enter, data, compare, objects, count, explain, attribute, group, same, different, conclusion, block diagram, sharing	music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit	sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code
On-line Safety	<b>Self-Image and Identity</b> I can explain how other people may look and act differently online and offline.	<b>On-Line Reputation</b> I can explain how information put online about someone can last for a long time.	<b>On-Line Bullying</b>	<b>Managing On-line Information</b> I can use simple keywords in search engines.	<b>Health well-being and Lifestyle</b> I can explain simple guidance for using technology in different environments and	<b>Privacy and Security</b>

## Computing Progression Documents

<p>Taken from <b>'Education for a connected World'</b> UK Council for Internet Safety.</p>	<p>I can give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened; I can give examples of how they might get help.</p> <p><b>On-line Relationships</b> I can give examples of how someone might use technology to communicate with others they don't also know offline and explain why this might be risky. (e.g. email, online gaming, a pen-pal in another school / country). I can explain who I should ask before sharing things about myself or others online. I can describe different ways to ask for, give, or deny my permission online and can identify who can help me if I am not sure. I can explain why I have a right to say 'no' or 'I will have to ask someone'. I can explain who can help me if I feel under pressure to agree to something I am unsure about or don't want to do. I can identify who can help me if something happens online without my consent. I can explain how it may make others feel if I do not ask their permission or ignore their answers before sharing something about them online. I can explain why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online.</p>	<p>I can describe how anyone's online information could be seen by others. I know who to talk to if something has been put online without consent or if it is incorrect.</p>	<p>I can explain what bullying is, how people may bully others and how bullying can make someone feel. I can explain why anyone who experiences bullying is not to blame. I can talk about how anyone experiencing bullying can get help.</p>	<p>I can demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections). I can explain what voice activated searching is and how it might be used, and know it is not a real person (e.g. Alexa, Google Now, Siri). I can explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'. I can explain why some information I find online may not be real or true.</p>	<p>settings e.g. accessing online technologies in public places and the home environment. I can say how those rules / guides can help anyone accessing online technologies.</p>	<p>I can explain how passwords can be used to protect information, accounts and devices. I can explain and give examples of what is meant by 'private' and 'keeping things private'. I can describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords). I can explain how some people may have devices in their homes connected to the internet and give examples (e.g. lights, fridges, toys, televisions).</p> <p><b>Copyright and Ownership</b> I can recognise that content on the internet may belong to other people. I can describe why other people's work belongs to them.</p>
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SEE TEACHER'S WEEKLY PLANS FOR CORE KNOWLEDGE AND ACTIVITY DETAILS

Year 3 <b>Computing Progression Documents</b>						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Computing systems and networks Connecting computers	Creating media Stop-frame animation	Programming A Sequencing sounds	Data and information Branching databases	Creating media Desktop publishing	Programming B Events and actions in programs
Prior Learning & Progression	This unit progresses learners' knowledge and understanding of technology by focusing on digital and non-digital devices, from the following units; Technology around me Year 1 and IT around us Year 2, and introducing the concept of computers connected together as a network.	This unit progresses learner's knowledge and understanding of using digital devices to create media, exploring how they can create stop-frame animations. It builds on learners previous understanding of images from the Digital Photography Year 2 unit	This unit assumes that learners will have some prior experience of programming; via the KS1 NCCE units. They will have experienced programming via floor robots; Moving A Robot Year 1 and Robot algorithms Year 2, alongside the use of ScratchJr through Programming animations Year 1 and Programming quizzes Year 2.	This unit progresses learners' knowledge and understanding of the categories of data handling, with a particular focus on implementation. It builds on their knowledge of data and information from key stage 1. They will continue to develop their understanding of attributes and begin to construct and interrogate branching databases as a means of displaying and retrieving information.	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.	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. The Year 3 — Programming A unit introduces the Scratch programming environment and the concept of sequences.
National Curriculum Substantive Knowledge	Learners will develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. They will also compare digital and non-digital devices. Next, learners will be introduced to computer networks, including devices that make up a network's infrastructure, such as wireless access points and switches. Finally, learners will discover the benefits of connecting devices in a network.	Learners will use a range of techniques to create a stop-frame animation. Next, they will apply those skills to create a storybased animation. This unit will conclude with learners adding other types of media to their animation, such as music and text.	This unit explores the concept of sequencing in programming through Scratch. It begins with an introduction to the programming environment, which will be new to most learners. They will be introduced to a selection of motion, sound, and event blocks which they will use to create their own programs, featuring sequences. The final project is to make a representation of a piano. The unit is paced to focus on all aspects of sequences, and make sure that knowledge is built in a structured manner. Learners also apply stages of program design through this unit.	Learners will develop their understanding of what a branching database is and how to create one. They will use yes/no questions to gain an understanding of what attributes are and how to use them to sort groups of objects. Learners will create physical and onscreen branching databases. To conclude the unit, they will create an identification tool using a branching database, which they will test by using it. They will also consider realworld applications for branching databases.	Learners will become familiar with the terms 'text' and 'images' and emojis and understand that they can be used to communicate messages offline and online. They will use desktop publishing software and consider careful choices of font size, colour and type to edit and improve premade documents. Learners will be introduced to the terms 'templates', 'orientation', and 'placeholders' and begin to understand how these can support them in making their own template for a magazine front cover. They will start to add text and images to create their own pieces of work using desktop publishing software. Learners will look at a range of page layouts thinking carefully about the purpose of these and evaluate how and why desktop publishing is used in the real world.	This unit explores the links between events and actions, while consolidating prior learning relating to sequencing. Learners begin by moving a sprite in four directions (up, down, left, and right). They then explore movement within the context of a maze, using design to choose an appropriately sized sprite. This unit also introduces programming extensions, through the use of Pen blocks. Learners are given the opportunity to draw lines with sprites and change the size and colour of lines. The unit concludes with learners designing and coding their own maze-tracing program.
Teach Compute Sessions/  Key Skills and Concepts	(lessons 1-6) 1.To <b>explain</b> how digital devices function 2.To <b>identify</b> input and output devices 3.To <b>recognise</b> how digital devices can change the way we work 4.To <b>explain</b> how a computer network can be used to share information 5.To <b>explore</b> how digital devices can be connected 6.To <b>recognise</b> the physical components of a network	(lessons 1-6) 1. To <b>explain</b> that animation is a sequence of drawings or photographs 2. To <b>relate</b> animated movement with a sequence of images 3. To <b>plan</b> an animation 4. To <b>identify</b> the need to work consistently and carefully 5. To <b>review</b> and improve an animation 6. To <b>evaluate</b> the impact of adding other media to an animation	(lessons 1-6) 1. To <b>explore</b> a new programming environment 2. To <b>identify</b> that commands have an outcome 3. To <b>explain</b> that a program has a start 4. To <b>recognise</b> that a sequence of commands can have an order 5. To <b>change</b> the appearance of my project 6. To <b>create</b> a project from a task description	(lessons 1-6) 1. To <b>create</b> questions with yes/no answers 2. To <b>identify</b> the attributes needed to collect data about an object 3. To <b>create</b> a branching database 4. To <b>explain</b> why it is helpful for a database to be well structured 5. To <b>plan</b> the structure of a branching database 6. To independently <b>create</b> an identification tool	(lessons 1-6) 1. To <b>recognise</b> how text and images convey information 2. To <b>recognise</b> that text and layout can be edited 3. To <b>choose</b> appropriate page settings 4. To <b>add content</b> to a desktop publishing publication 5. To <b>consider</b> how different layouts can suit different purposes 6. To <b>consider</b> the benefits of desktop publishing	(lessons 1-6) 1. To <b>explain</b> how a sprite moves in an existing project 2. To <b>create</b> a program to move a sprite in four directions 3. To <b>adapt</b> a program to a new context 4. To <b>develop</b> my program by adding features 5. To <b>identify</b> and fix bugs in a program 6. To <b>design</b> and create a maze-based challenge
Sticky Knowledge	To identify at least 2 networked devices around them (Network switch, server, wireless access point- see knowledge organiser). To be able to explain that different devices have different purposes. (smartboard for teaching, iPad for researching).	To be able to explain that an animation is a sequence of pictures or images. To be able to name a program used to make stop frame animation (e.g. iMotion).	To explain the difference between text and images. To be able to demonstrate how to change font size and colour on a desktop computer (through Word and Publisher).	To give an example of an open-ended question and a yes/no question. To know that the objects in a branching database need to be split into similar sized groups.	To explain what a sprite is. I can identify sprites and backgrounds in the Scratch program.	I know that event blocks are yellow and movement blocks are the darker blue on Scratch.
Assessment Opportunities	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. <b>Summative Assessment</b> Please see the summative assessment document of multiple-choice questions for this unit.	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. The learning objectives and success criteria are introduced in the slide decks at the beginning of each lesson and then reviewed at the end. <b>Summative Assessment</b> Please see the assessment rubric document for this unit. The rubric can be used to assess student's work.	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. <b>Summative Assessment</b> Please see the assessment rubric document for this unit. The rubric can be used to assess student's work from lesson 6.	<b>Formative Assessment</b> Assessment opportunities are provided in each of the lesson plan documents. <b>Summative Assessment</b> Please see the document of multiple choice questions for this unit.	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. <b>Summative Assessment</b> Please see the assessment rubric document for this unit. The rubric can be used to assess student's work from lessons 3 to 6.	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. <b>Summative Assessment</b> Please see the assessment questions and solutions for this unit
Vocabulary	digital device, input, process, output, program, digital, non-digital, connection,	nimation, flip book, stopframe, frame, sequence, image, photograph, setting,	Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop,	attribute, value, questions, table, objects, branching, database, objects, equal, even,	text, images, advantages, disadvantages, communicate, font, style, landscape,	motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set

# Computing Progression Documents

	network, switch, server, wireless access point, cables, sockets	character, events, onion skinning, consistency, evaluation, delete, media, import, transition	motion, turn, point in direction, go to, glide, sequence, event, task, design, run the code, order, note, chord, algorithm, bug, debug, code	separate, structure, compare, order, organise, selecting, information, decision tree	portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits	up, pen, design, action, debugging, errors, setup, code, test, debug, actions
<p>On- line Safety</p> <p>Taken from <b>'Education for a connected World'</b> UK Council for Internet Safety.</p>	<p><b>Self-Image and Identity</b></p> <p>I can explain what is meant by the term 'identity'.</p> <p>I can explain how people can represent themselves in different ways online.</p> <p>I can explain ways in which someone might change their identity depending on what they are doing online (e.g. gaming; using an avatar; social media) and why.</p> <p><b>On-line Relationships</b></p> <p>I can describe ways people who have similar likes and interests can get together online.</p> <p>I can explain what it means to 'know someone' online and why this might be different from knowing someone offline.</p> <p>I can explain what is meant by 'trusting someone online', why this is different from 'liking someone online', and why it is important to be careful about who to trust online including what information and content they are trusted with.</p> <p>I can explain why someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried.</p> <p>I can explain how someone's feelings can be hurt by what is said or written online.</p> <p>I can explain the importance of giving and gaining permission before sharing things online; how the principles of sharing online is the same as sharing offline e.g. sharing images and videos.</p>	<p><b>On-Line Reputation</b></p> <p>I can explain how to search for information about others online.</p> <p>I can give examples of what anyone may or may not be willing to share about themselves online. I can explain the need to be careful before sharing anything personal.</p> <p>I can explain who someone can ask if they are unsure about putting something online.</p>	<p><b>On-Line Bullying</b></p> <p>I can describe appropriate ways to behave towards other people online and why this is important.</p> <p>I can give examples of how bullying behaviour could appear online and how someone can get support.</p>	<p><b>Managing On-line Information</b></p> <p>I can demonstrate how to use key phrases in search engines to gather accurate information online.</p> <p>I can explain what autocomplete is and how to choose the best suggestion.</p> <p>I can explain how the internet can be used to sell and buy things.</p> <p>I can explain the difference between a 'belief', an 'opinion' and a 'fact. and can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc.</p> <p>I can explain that not all opinions shared may be accepted as true or fair by others (e.g. monsters under the bed).</p> <p>I can describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable worried or frightened.</p>	<p><b>Health well-being and Lifestyle</b></p> <p>I can explain why spending too much time using technology can sometimes have a negative impact on anyone, e.g. mood, sleep, body, relationships; I can give some examples of both positive and negative activities where it is easy to spend a lot of time engaged (e.g. doing homework, games, films, videos).</p> <p>I can explain why some online activities have age restrictions, why it is important to follow them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites).</p>	<p><b>Privacy and Security</b></p> <p>I can describe simple strategies for creating and keeping passwords private.</p> <p>I can give reasons why someone should only share information with people they choose to and can trust.</p> <p>I can explain that if they are not sure or feel pressured then they should tell a trusted adult.</p> <p>I can describe how connected devices can collect and share anyone's information with others.</p> <p><b>Copyright and Ownership</b></p> <p>I can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.</p>
SEE TEACHER'S WEEKLY PLANS FOR CORE KNOWLEDGE AND ACTIVITY DETAILS						

## Computing Progression Documents

Year 4						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Computing systems and networks The internet	Creating media Audio production	Programming A Repetition in shapes	Data and information Data logging	Creating media Photo editing	Programming B Repetition in games
Prior Learning & Progression	This unit progresses students' knowledge and understanding of networks from that developed in the Year 3 Connecting Computers unit. In Year 5, they will continue to develop their knowledge and understanding of computing systems and understand how search engines work via the internet and the world wide web.	This unit progresses students' knowledge and understanding of creating media, by focusing on the recording and editing of sound to produce a podcast. Following this unit, learners will explore combining audio with video in the 'Video editing' unit in Year 5.	This unit progresses students' knowledge and understanding of programming. Within the Year 3 units, Programming A Sequencing Sounds and Programming B- Events and Actions in programs, learners will have an awareness of the sequence of commands in a program. This unit progresses on to using count-controlled loops in those sequences. Pupils will create algorithms and then implement those algorithms as code.	This unit progresses learners' knowledge and understanding of data and how it can be collected over time to answer questions. Specifically, it builds on the concept of answering questions with data which is first introduced in the KS1 data and information units. The unit also introduces the idea of automatic data collection. Learners are also introduced to data in tables and graphs, knowledge they will build on in the Year 5 unit (flat file databases) and the Year 6 unit (spreadsheets).	This unit progresses students' knowledge and understanding of digital photography and using digital devices to create media. Learners will have had some exposure to images and their manipulation through the Teach Computing Digital Photography- Year 2 unit. Following this unit, learners will further develop their image editing skills in Year 5 – Vector drawing.	This unit assumes that learners will have some prior experience of programming. The KS1 NCCE units cover floor robots and ScratchJr, and Scratch, and the skill of sequence, is introduced in the Year 3 programming units: Sequencing Sounds and Events and actions in programs. However, experience of other languages or environments may also be useful.
National Curriculum Substantive Knowledge	Learners will apply their knowledge and understanding of networks, to appreciate the internet as a network of networks which need to be kept secure. They will learn that the World Wide Web is part of the internet, and will be given opportunities to explore the World Wide Web for themselves in order to learn about who owns content and what they can access, add, and create. Finally, they will evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information.	Learners will identify the input device (microphone) and output devices (speaker or headphones) required to work with sound digitally. Learners will discuss the ownership of digital audio and the copyright implications of duplicating the work of others. In order to record audio themselves, learners will use Audacity to produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files. Finally, learners will evaluate their work and give feedback to their peers.	Learners will create programs by planning, modifying, and testing commands to create shapes and patterns. They will use Logo, a textbased programming language. This unit is the first of the two programming units in Year 4 and looks at repetition and loops within programming	In this unit, learners will consider how and why data is collected over time. Learners will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. Learners will collect data as well as access data captured over long periods of time. They will look at data points, data sets, and logging intervals. Learners will spend time using a computer to review and analyse data. Towards the end of the unit, learners will pose questions and then use data loggers to automatically collect the data needed to answer those questions.	Learners will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They will consider the impact that editing images can have and evaluate the effectiveness of their choices.	Learners will explore the concept of repetition in programming using the Scratch environment. The unit begins with a Scratch activity similar to that carried out in Logo in Programming unit A, where learners can discover similarities between two environments. Learners look at the difference between count-controlled and infinite loops and use their knowledge to modify existing animations and games using repetition. Their final project is to design and create a game which uses repetition, applying stages of programming design throughout .
Teach Compute Sessions/  Key Skills and Concepts	(lessons 1-6) 1. To <b>describe</b> how networks physically connect to other networks 2. To <b>recognise</b> how networked devices make up the internet 3. To <b>outline</b> how websites can be shared via the World Wide Web (WWW) 4. To <b>describe</b> how content can be added and accessed on the World Wide Web (WWW) 5. To <b>recognise</b> how the content of the WWW is created by people 6. To <b>evaluate</b> the consequences of unreliable content	(lessons 1-6) 1. To <b>identify</b> that sound can be recorded 2. To <b>explain</b> that audio recordings can be edited 3. To <b>recognise</b> the different parts of creating a podcast project 4. To <b>apply</b> audio editing skills independently 5. To <b>combine</b> audio to enhance my podcast 6. To <b>evaluate</b> the effective use of audio	(lessons 1-6) 1. To <b>identify</b> that accuracy in programming is important 2. To <b>create</b> a program in a text-based language 3. To <b>explain</b> what 'repeat' means 4. To <b>modify</b> a countcontrolled loop to produce a given outcome 5. To <b>decompose</b> a task into small steps 6. To <b>create</b> a program that uses count-controlled loops to produce a given outcome	(lessons 1-6) 1. To <b>explain</b> that data gathered over time can be used to answer questions 2. To <b>use</b> a digital device to collect data automatically 3. To <b>explain</b> that a data logger collects 'data points' from sensors over time 4. To <b>recognise</b> how a computer can help us analyse data 5. To <b>identify</b> the data needed to answer questions 6. To <b>use data</b> from sensors to answer questions	(lessons 1-6) 1. To <b>explain</b> that the composition of digital images can be changed 2. To <b>explain</b> that colours can be changed in digital images 3. To explain how cloning can be used in photo editing 4. To explain that images can be combined 5. To <b>combine images</b> for a purpose 6. To <b>evaluate</b> how changes can improve an image	(lessons 1-6) 1. To <b>develop</b> the use of count-controlled loops in a different programming environment 2. To <b>explain</b> that in programming there are infinite loops and countcontrolled loops 3. To <b>develop a design</b> that includes two or more loops which run at the same time 4. To <b>modify</b> an infinite loop in a given program 5. To <b>design a project</b> that includes repetition 6. To <b>create a project</b> that includes repetition
Sticky Knowledge	To know that websites and their contents are created by people. To know that information found online is not necessarily honest, accurate or legal. To know what a URL address is and how to access a website.	I can identify the uses for recorded audio (music, podcasts etc.). To explain the ways that audio can be recorded and how to make it of high quality.	To be able to explain the reasons why somebody may want to change the composition of an image. I can give examples of positive and negative effects that editing an image may have.	To be able to identify patterns of repetition in real life (brushing teeth, dance). To explain how to use the repeat block in Scratch/Lego WeDo.	To be able to explain the uses for gathered data. To be able to explain the different ways that data may be gathered.	I can explain the uses of repetition in programming and link this with the drawing of various shapes.
Assessment Opportunities	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. The learning objectives and success criteria are introduced in the slide decks at the beginning of each lesson and then reviewed at the end. <b>Summative Assessment</b>	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. <b>Summative Assessment</b> Please see the assessment rubric document for this unit. The rubric can be used to assess student's work from lesson 6.	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. <b>Summative Assessment</b> Please see the summative assessment document of multiple-choice questions for this unit. This can be downloaded as a paper copy, with answers, or in a digital format to be shared.	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. <b>Summative Assessment</b> Please see the assessment rubric document for this unit. The rubric can be used to assess student's work from lessons 5 and 6.	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. The learning objectives and success criteria are introduced in the slide decks at the beginning of each lesson and then reviewed at the end. <b>Summative Assessment</b> Please see the assessment rubric document for this unit. The rubric can be	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. <b>Summative Assessment</b> Please see the assessment rubric document for this unit. The rubric can be used to assess student's work from lessons 5 and 6.

## Computing Progression Documents

	Please see the summative assessment document of multiple-choice questions for this unit.				used to assess student's work from Lessons 5 and 6.	
Vocabulary	internet, network, router, security, switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts	audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback	Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure	data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion	image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine, made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, undo, font	Scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate
On-line Safety  Taken from 'Education for a connected World' UK Council for Internet Safety.	<p><b>Self-Image and Identity</b> I can explain how my online identity can be different to my offline identity. I can describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them. I can explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this.</p> <p><b>On-line Relationships</b> I can describe strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms). I can give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours. I can explain how content shared online may feel unimportant to one person but may be important to other people's thoughts feelings and beliefs.</p>	<p><b>On-Line Reputation</b> I can describe how to find out information about others by searching online. I can explain ways that some of the information about anyone online could have been created, copied or shared by others.</p>	<p><b>On-Line Bullying</b> I can recognise when someone is upset, hurt or angry online. I can explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation). I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat).</p>	<p><b>Managing On-line Information</b> 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. I can describe how to search for information within a wide group of technologies and make a judgement about the probable accuracy (e.g. social media, image sites, video sites). I can describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online. I can explain why lots of people sharing the same opinions or beliefs online do not make those opinions or beliefs true. I can explain that technology can be designed to act like or impersonate living things (e.g. bots) and describe what the benefits and the risks might be. 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><b>Health well-being and Lifestyle</b> I can explain how using technology can be a distraction from other things, in both a positive and negative way. I can identify times or situations when someone may need to limit the amount of time they use technology e.g. I can suggest strategies to help with limiting this time.</p>	<p><b>Privacy and Security</b> I can describe strategies for keeping personal information private, depending on context. I can explain that internet use is never fully private and is monitored, e.g. adult supervision. I can describe how some online services may seek consent to store information about me; I know how to respond appropriately and who I can ask if I am not sure. I know what the digital age of consent is and the impact this has on online services asking for consent.</p> <p><b>Copyright and Ownership</b> 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 of content which I must not use without permission from the owner, e.g. videos, music, images.</p>
SEE TEACHER'S WEEKLY PLANS FOR CORE KNOWLEDGE AND ACTIVITY DETAILS						



Year 5 <b>Computing Progression Documents</b>						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Computing systems and networks Systems and searching	Creating media Video Production	Programming A Selection in physical computing	Data and information Flat-file databases	Creating media Introduction to vector graphics	Programming B Selection in quizzes
Prior Learning & Progression	This unit progresses learners' knowledge and understanding of computing systems. This unit progresses students' knowledge and understanding of the internet from that developed in the Year 4 The Internet unit. In Year 6, they will continue to develop their knowledge and understanding of the internet, looking at how data is transferred and how the internet facilitates communication and collaboration online.	This unit progresses learners' knowledge and understanding of creating media by guiding them systematically through the process involved in creating a video. The unit builds on the Year 4 Photo editing unit where composition is introduced and the Year 3 unit 'Stopframe animation' where learners explored some of the features of video production. By the end of this unit, learners will have developed the skills required to plan, record, edit, and share a video.	This unit assumes that learners will have prior experience of programming using a block-based language (e.g. Scratch) and understand the concepts of sequence and repetition. The National Centre for Computing Education Key Stage 1 units focus on floor robots and ScratchJr, however, experience of other languages or environments may also be useful.	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 application of all the tools used within the unit.	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 desktop publishing documents.	This unit assumes that learners will have prior experience of programming using blockbased construction (e.g. Scratch), understand the concepts of 'sequence' (Year 3 units: Sequencing Sounds and Events and actions in programs) and 'repetition' (Year 4 units: Repetition in shapes and Repetition in games), and have some experience of using 'selection'. 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'.
National Curriculum Substantive Knowledge	Learners develop their understanding of computer systems and how information is transferred between systems and devices. Learners consider small-scale systems as well as large-scale systems. They explain the input, output, and process aspects of a variety of different realworld systems. Learners discover how information is found on the World Wide Web, through learning how search engines work (including how they select and rank results) and what influences searching, and through comparing different search engines.	Learners will learn how to create short videos by working in pairs or groups. As they progress through this unit, they will be exposed to topic-based language and develop the skills of capturing, editing, and manipulating video. Learners are guided with step-by-step support to take their idea from conception to completion. At the conclusion of the unit, learners have the opportunity to reflect on and assess their progress in creating a video.	In this unit, learners will use physical computing to explore the concept of selection in programming through the use of the Crumble programming environment. Learners will be introduced to a microcontroller (Crumble controller) and learn how to connect and program it to control components (including output devices — LEDs and motors). Learners will be introduced to conditions as a means of controlling the flow of actions in a program. Learners will make use of their knowledge of repetition and conditions when introduced to the concept of selection (through the 'if...then...' structure) and write algorithms and programs that utilise this concept. To conclude the unit, learners will design and make a working model of a fairground carousel that will demonstrate their understanding of how the microcontroller and its components are connected, and how selection can be used to control the operation of the model. Throughout this unit, learners will apply the stages of programming design.	This unit looks at how a flatfile database can be used to organise data in records. Learners will use tools within a database to order and answer questions about data. They will create graphs and charts from their data to help solve problems. They will also use a real-life database to answer a question, and present their work to others.	In this unit, learners start to create vector drawings. They learn how to use different drawing tools to help them create images. Learners recognise that images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. Learners layer their objects and begin grouping and duplicating them to support the creation of more complex pieces of work.	Learners will develop their knowledge of 'selection' by revisiting how 'conditions' can be used in programming, and then learning how the 'if... then... else...' structure can be used to select different outcomes depending on whether a condition is 'true' or 'false'. They represent this understanding in algorithms, and then by constructing programs in the Scratch programming environment. They learn how to write programs that ask questions and use selection to control the outcomes based on the answers given. They use this knowledge to design a quiz in response to a given task and implement it as a program. To conclude the unit, learners evaluate their program by identifying how it meets the requirements of the task, the ways they have improved it, and further ways it could be improved.
Teach Compute Sessions/  Key Skills and Concepts	(lessons 1-6) 1. To <b>explain</b> that computers can be connected together to form systems 2. To <b>recognise</b> the role of computer systems in our lives 3. To <b>identify</b> how to use a search engine 4. To <b>describe</b> how search engines select results 5. To <b>explain</b> how search results are ranked 6. To <b>recognise</b> why the order of results is important, and to whom	(lessons 1-6) 1. To <b>explain</b> what makes a video effective 2. To <b>use a digital device</b> to record video 3. To <b>capture video</b> using a range of techniques 4. To <b>create</b> a storyboard 5. To <b>identify</b> that video can be improved 6. To <b>consider</b> the impact of the choices made when making and sharing a video	(lessons 1-6) 1. To <b>control a simple circuit</b> connected to a computer 2. To <b>write a program</b> that includes count-controlled loops 3. To <b>explain</b> that a loop can stop when a condition is met 4. To explain that a loop can be used to repeatedly check whether a condition has been met 5. To <b>design</b> a physical project that includes selection 6. To <b>create a program</b> that controls a physical computing project	(lessons 1-6) 1. To <b>use a form</b> to record information 2. To <b>compare</b> paper and computer-based databases 3. To <b>outline</b> how you can answer questions by grouping and then sorting data 4. To <b>explain</b> that tools can be used to select specific data 5. To <b>explain</b> that computer programs can be used to compare data visually 6. To <b>use</b> a real-world database to answer questions	(lessons 1-6) 1. To <b>identify</b> that drawing tools can be used to produce different outcomes 2. To <b>create</b> a vector drawing by combining shapes 3. To <b>use tools</b> to achieve a desired effect 4. To <b>recognise</b> that vector drawings consist of layers 5. To <b>group objects</b> to make them easier to work with 6. To <b>apply</b> what I have learned about vector drawings	(lessons 1-6) 1. To <b>explain</b> how selection is used in computer programs 2. To <b>relate</b> that a conditional statement connects a condition to an outcome 3. To <b>explain</b> how selection directs the flow of a program 4. To <b>design a program</b> that uses selection 5. To <b>create a program</b> that uses selection 6. To <b>evaluate</b> my program
Sticky Knowledge	Can describe that a computer system uses an input, process and an output. I can explain that different media, files and information can be shared on the internet either privately or publicly. Can explain how the internet enables effective collaboration.	Can recognise videos are moving images which may include sound. Can name digital devices that can record video. Can identify what makes an effective/appealing video.	To know that a loop can be stopped when a condition is met. Can explain a loop can be used to repeatedly check when a condition has been met (or not).	Can explain that programs can be used to compare data. Can explain how information can be grouped. Can explain what a 'field' and 'record' is in a database.	To know that vector drawing has different layers/shapes. Know drawing tools can be used to produce different outcomes.	Can explain how selection is used in computer programs. Explain how selection effects the flow of a program.

## Computing Progression Documents

Assessment Opportunities	<p><b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan.</p> <p><b>Summative Assessment</b> Please see the summative assessment document of multiple-choice questions for this unit.</p>	<p><b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. The learning objectives and success criteria are introduced in the slide decks at the beginning of each lesson and then reviewed at the end.</p> <p><b>Summative Assessment</b> Please see the assessment rubric document for this unit. The rubric can be used to assess student's work from lessons 4 to 6.</p>	<p><b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan.</p> <p><b>Summative Assessment</b> Please see the assessment rubric document for this unit. The rubric can be used to assess student's work from lessons 5 and 6.</p>	<p><b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan.</p> <p><b>Summative Assessment</b> Please see the summative assessment document of multiple-choice questions for this unit.</p>	<p><b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan.</p> <p><b>Summative Assessment</b> Please see the assessment rubric document for this unit. The rubric can be used to assess student's work from lessons 3 to 6</p>	<p><b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan.</p> <p><b>Summative Assessment</b> Please see the summative assessment document of multiple-choice questions for this unit.</p>
Vocabulary	system, connection, digital, input, process, storage, output, search, search engine, refine, index, bot, ordering, links, algorithm, search engine optimisation (SEO), web crawler, content creator, selection, ranking	video, audio, camera, talking head, panning, close up, video camera, microphone, lens, mid-range, long shot, moving subject, side by side, angle (high, low, normal), static, zoom, pan, tilt, storyboard, filming, review, import, split, trim, clip, edit, reshoot, delete, reorder, export, evaluate, share	microcontroller, USB, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, Input, output, selection, action, debug, circuit, power, cell, buzzer	database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation	vector, drawing tools, object, toolbar, vector drawing, move, resize, colour, rotate, duplicate/copy, zoom, select, align, modify, layers, order, copy, paste, group, ungroup, reuse, reflection	selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator
On-line Safety  Taken from <b>'Education for a connected World'</b> UK Council for Internet Safety.	<p><b>Self-Image and Identity</b> I can explain how identity online can be copied, modified or altered. I can demonstrate how to make responsible choices about having an online identity, depending on context.</p> <p><b>On-line Relationships</b> I can give examples of technology-specific forms of communication (e.g. emojis, memes and GIFs). I can explain that there are some people I communicate with online who may want to do me or my friends harm. I can recognise that this is not my / our fault. I can describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with others and make positive contributions. (e.g. gaming communities or social media groups). I can explain how someone can get help if they are having problems and identify when to tell a trusted adult. I can demonstrate how to support others (including those who are having difficulties) online.</p>	<p><b>On-Line Reputation</b> I can search for information about an individual online and summarise the information found. I can describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect.</p>	<p><b>On-Line Bullying</b> I can recognise online bullying can be different to bullying in the physical world and can describe some of those differences. I can describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying. I can explain how anyone can get help if they are being bullied online and identify when to tell a trusted adult. I can identify a range of ways to report concerns and access support both in school and at home about online bullying. I can explain how to block abusive users. I can describe the helpline services which can help people experiencing bullying, and how to access them (e.g. Childline or The Mix).</p>	<p><b>Managing On-line Information</b> I can explain the benefits and limitations of using different types of search technologies e.g. voice-activation search engine. I can explain how some technology can limit the information I aim presented with e.g. voice-activated searching giving one result. I can explain what is meant by 'being sceptical'; I can give examples of when and why it is important to be 'sceptical'. I can evaluate digital content and can explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results. I can explain key concepts including: information, reviews, fact, opinion, belief, validity, reliability and evidence. I can identify ways the internet can draw us to information for different agendas, e.g. website notifications, pop-ups, targeted ads. 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, influencers). I can explain what is meant by the term 'stereotype', how 'stereotypes' are amplified and reinforced online, and why accepting 'stereotypes' may influence how people think about others. I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful. I can explain what is meant by a 'hoax'. I can explain why someone would need to think carefully before they share.</p>	<p><b>Health well-being and Lifestyle</b> I can describe ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively. I can describe some strategies, tips or advice to promote health and well-being with regards to technology. I recognise the benefits and risks of accessing information about health and well-being online and how we should balance this with talking to trusted adults and professionals. I can explain how and why some apps and games may request or take payment for additional content (e.g. in-app purchases, lootboxes) and explain the importance of seeking permission from a trusted adult before purchasing.</p>	<p><b>Privacy and Security</b> I can explain what a strong password is and demonstrate how to create one. I can explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others. I can explain what app permissions are and can give some examples.</p> <p><b>Copyright and Ownership</b> 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 and know how this content can be found online.</p>
SEE TEACHER'S WEEKLY PLANS FOR CORE KNOWLEDGE AND ACTIVITY DETAILS						

Year 6 <b>Computing Progression Documents</b>						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Computing systems and networks Communication and Collaboration	Creating media Web Page Creation	Programming A Variables in Games	Data and information Introduction to Spreadsheets	Creating media 3D Modelling	Programming B Sensing Movement
Prior Learning & Progression	This unit progresses learners' knowledge and understanding of computing systems and online collaborative working.	This unit progresses students' knowledge and understanding of the following: digital writing, digital painting, desktop publishing, digital photography, photo editing, and vector drawing.	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.	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.	This unit progresses students' knowledge and understanding of creating 3D graphics using a computer. Prior to undertaking this unit, learners should have worked with 2D graphics applications in Y5.	This unit is the final KS2 programming unit and brings together elements of all the four programming constructs: sequence from Year 3, repetition from Year 4, selection from Year 5, and variables (introduced in Year 6 – 'Programming A'). It offers pupils the opportunity to use all of these constructs in a different, but still familiar environment, while also utilising a physical device — the micro:bit. The unit begins with a simple program for pupils to build in and test within the new programming environment, before transferring it to their micro:bit. Pupils then take on three new projects in Lessons 2, 3, and 4, with each lesson adding more depth.
National Curriculum Substantive Knowledge	In this unit learners explore how data is transferred over the internet. Learners initially focus on addressing, before they move on to the makeup and structure of data packets. Learners then look at how the internet facilitates online communication and collaboration; they complete shared projects online and evaluate different methods of communication. Finally, they learn how to communicate responsibly by considering what should and should not be shared on the internet and how to report concerns about inappropriate content online. Note: Some of the content in this unit was previously included in the Year 5 – 'Computer systems and networks' unit, so some learners may have already completed similar activities. Where this is the case, the context for the activity has been changed.	Learners will be introduced to creating websites for a chosen purpose. Learners identify what makes a good web page and use this information to design and evaluate their own website using Google Sites. Throughout the process, learners pay specific attention to copyright, fair use of media and creative commons, the aesthetics of the site, and navigation paths. This will enable the learners to understand how to be a respectful and responsible user of technology online.	This unit explores the concept of variables in programming through games in Scratch. First, learners find out what variables are and relate them to real-world examples of values that can be set and changed. Then they use variables to create a simulation of a scoreboard.	This unit introduces the learners to spreadsheets. They will be supported in organising data into columns and rows to create their own data set. Learners will be taught the importance of formatting data to support calculations, while also being introduced to formulas and will begin to understand how they can be used to produce calculated data. Learners will be taught how to apply formulas that include a range of cells, and apply formulas to multiple cells by duplicating them. Learners will use spreadsheets to plan an event and answer questions. Finally, learners will create charts, and evaluate their results in comparison to questions asked.	Learners will develop their knowledge and understanding of using a computer to produce 3D models. Learners will initially familiarise themselves with working in a 3D space, moving, resizing, and duplicating objects. They will then create hollow objects using placeholders and combine multiple objects to create a model of a desk tidy. Finally, learners will examine the benefits of grouping and ungrouping 3D objects, then go on to plan, develop, and evaluate their own 3D model of a building.	Design features prominently in this unit. A design template is introduced in Lesson 3, initially scaffolded to give pupils the opportunity to create code from a given design. In Lesson 4 that scaffolding is gradually reduced, then in Lesson 5, pupils create their own design, using the same template. In the final lesson, pupils will apply their knowledge of the programming constructs and use their design to create their own micro:bit - based step counter.
Teach Compute Sessions/ <b>Key Skills</b> and Concepts	(lessons 1-6) 1. To <b>explain the importance</b> of internet addresses 2. To <b>recognise how data</b> is transferred across the internet 3. To <b>explain how sharing</b> information online can help people to work together 4. To <b>evaluate</b> different ways of working together online 5. To <b>recognise</b> how we communicate using technology 6. To <b>evaluate</b> different methods of online communication	(lessons 1-6) 1. To <b>review</b> an existing website and consider its structure. 2. To <b>plan the features</b> of a web page 3. To <b>consider</b> the ownership and use of images (copyright) 4. To <b>recognise</b> the need to preview pages 5. To <b>outline</b> the need for a navigation path 6. To <b>recognise</b> the implications of linking to content owned by other people	(lessons 1-6) 1. To <b>define a 'variable'</b> as something that is changeable 2. To <b>explain</b> why a variable is used in a program 3. To <b>choose</b> how to improve a game by using variables 4. To <b>design a project</b> that builds on a given example 5. To <b>use my design</b> to create a project 6. To <b>evaluate</b> my project	(lessons 1-6) 1. To <b>create</b> a data set in a spreadsheet 2. To <b>build a data set</b> in a spreadsheet 3. To <b>explain</b> that formulas can be used to produce calculated data 4. To <b>apply</b> formulas to data 5. To <b>create</b> a spreadsheet to plan an event 6. To <b>choose</b> suitable ways to present data	(lessons 1-6) 1. To <b>recognise</b> that you can work in three dimensions on a computer 2. To <b>identify</b> that digital 3D objects can be modified 3. To <b>recognise</b> that objects can be combined in a 3D model 4. To <b>create a 3D model</b> for a given purpose 5. To <b>plan</b> my own 3D model 6. To <b>create</b> my own digital 3D model	(lessons 1-6) 1. To <b>create a program</b> to run on a controllable device (micro:bit) 2. To <b>explain</b> that selection can control the flow of a program 3. To <b>update a variable</b> with a user input 4. To <b>use a conditional statement</b> to compare a variable to a value 5. To <b>design</b> a project that uses inputs and outputs on a controllable device 6. To <b>develop a program</b> to use inputs and outputs on a controllable device
Sticky Knowledge	Can explain that search results are ordered. Can name a variety of ways of communicating over the internet (email, social media post, comment field, blog, vlog etc).	Can define what is meant by the terms 'copyright' and 'fair use'. Can describe how pages of a website are linked together (through the use of hyperlinks).	Can define a 'variable' as something that is changeable. Can explain why a variable is used in a program.	Can explain that objects can be described using data. Knows that a formula must start with an = sign. Knows that data can be best represented in tables or graphs.	Can name the 3D shapes needed to create a model of a real-world object. Can explain why we might represent 3D objects on a computer.	Can explain that some devices need to have sensors in order to help it make decisions about where to go and where to stop. Can explain that what a device senses can change or control the flow of a program.
Assessment Opportunities	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan.	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan.	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. The learning objectives	<b>Formative Assessment</b>	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan.	<b>Formative Assessment</b> Assessment opportunities are detailed in each lesson plan. The learning objectives

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	<p><b>Summative Assessment</b> Please see the assessment question and answer documents for this unit.</p>	<p><b>Summative assessment</b> Please see the assessment rubric document for this unit. The rubric can be used to assess student's work from lessons 2 to 6.</p>	<p>and success criteria are introduced in the slide deck at the beginning of each lesson. <b>Summative assessment</b> Please see the assessment question and answer documents for this unit.</p>	<p>Formative assessment opportunities are provided throughout each of the lesson plan documents. <b>Summative Assessment</b> Please see the MCQ document for this unit.</p>	<p><b>Summative assessment</b> Please see the assessment rubric document for this unit. The rubric can be used to assess student's work from lessons 5 and 6.</p>	<p>and success criteria are introduced in the slide deck at the beginning of each lesson. It is recommended that teachers collect the programming work which the pupils complete either by sharing the URLs with their teacher when they select 'Share' and 'Publish Project' or by downloading the code file and saving it on the school's computer system. This will aid assessment throughout this unit. <b>Summative assessment</b> Please see the assessment rubric document for this unit. The rubric can be used to assess student's work from lessons 5 and 6.</p>
Vocabulary	communication, protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, internet, public, private, one-way, two-way, one-to-one, one-to-many	website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage, evaluate, implication, external link, embed	variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare	data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, spreadsheet, input, output, operation, range, duplicate, sigma, propose, question, data set, organised, chart, evaluate, results, sum, comparison, software, tools	TinkerCAD, 2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, rotate, duplicate, group, cylinder, cube, cuboid, sphere, cone, prism, pyramid, placeholder, hollow, choose, combine, construct, evaluate, modify.	Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug
On-line Safety  Taken from <b>'Education for a connected World'</b> UK Council for Internet Safety.	<p><b>Self-Image and Identity</b> I can identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online. I can describe issues online that could make anyone feel sad, worried, uncomfortable or frightened. I know and can give examples of how to get help, both on and offline. I can explain the importance of asking until I get the help needed.</p> <p><b>On-line Relationships</b> I can explain how sharing something online may have an impact either positively or negatively. I can describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not. I can describe how things shared privately online can have unintended consequences for others. e.g. screen-grabs. I can explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this.</p>	<p><b>On-Line Reputation</b> I can explain the ways in which anyone can develop a positive online reputation. I can explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity.</p>	<p><b>On-Line Bullying</b> I can describe how to capture bullying content as evidence (e.g. screen-grab, URL, profile) to share with others who can help me. I can explain how someone would report online bullying in different contexts.</p>	<p><b>Managing On-line Information</b> I can explain how search engines work and how results are selected and ranked. I can explain how to use search technologies effectively. I can describe how some online information can be opinion and can offer examples. I can explain how and why some people may present 'opinions' as 'facts'; why the popularity of an opinion or the personalities of those promoting it does not necessarily make it true, fair or perhaps even legal. I can define the terms 'influence', 'manipulation' and 'persuasion' and explain how someone might encounter these online (e.g. advertising and 'ad targeting' and targeting for fake news). I understand the concept of persuasive design and how it can be used to influence peoples' choices. I can demonstrate how to analyse and evaluate the validity of 'facts' and information and I can explain why using these strategies are important. I can explain how companies and news providers target people with online news stories they are more likely to engage with and how to recognise this. I can describe the difference between on-line misinformation and dis-information. I can explain why information that is on a large number of sites may still be inaccurate or untrue. I can assess how this might happen (e.g. the sharing of misinformation or disinformation). I can identify, flag and report inappropriate content.</p>	<p><b>Health well-being and Lifestyle</b> I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose. I recognise and can discuss the pressures that technology can place on someone and how / when they could manage this. I can recognise features of persuasive design and how they are used to keep users engaged (current and future use). I can assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise).</p>	<p><b>Privacy and Security</b> I can describe effective ways people can manage passwords (e.g. storing them securely or saving them in the browser). I can explain what to do if a password is shared, lost or stolen. I can describe how and why people should keep their software and apps up to date, e.g. auto updates. I can describe simple ways to increase privacy on apps and services that provide privacy settings. I can describe ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing). I know that online services have terms and conditions that govern their use.</p> <p><b>Copyright and Ownership</b> 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.</p>
SEE TEACHER'S WEEKLY PLANS FOR CORE KNOWLEDGE AND ACTIVITY DETAILS						

## Children will develop a sound knowledge of the 3 aspects of the curriculum

<b><u>Spiral Curriculum</u></b>	The units for Key Stage 1 and Key Stage 2 are based on a spiral curriculum. This means that each of the themes is revisited regularly (at least once in each year group), and pupils revisit each theme through a new unit that consolidates on prior learning within that theme.
<b><u>Physical Computing</u></b>	Our Curriculum acknowledges that physical computing plays an important role in modern pedagogical approaches in computing, both as a tool to engage pupils and as a strategy to develop pupils' understanding in more creative ways. Additionally, it supports and engages a diverse range of pupils in tangible and challenging tasks. The Physical Computing units are: <ul style="list-style-type: none"> <li>• Year 5 – Selection in physical computing, which uses a Crumble controller</li> <li>• Year 6 – Sensing moving, which uses a micro:bit</li> </ul>
<b><u>Online Safety</u></b>	The unit overviews for each Teach Computing unit, shows the links between the content of the lessons and the national curriculum and Education for a Connected World Framework (ncce.io/efacw). Not all objectives in the Education for a Connected World framework are covered in our Computing curriculum, as some are better suited to personal, social, health and economic (PSHE) and spiritual, moral, social, and cultural (SMSC) development.

### **Declarative and Procedural Knowledge**

<b><u>Declarative Knowledge</u></b>	Declarative knowledge, often referred to as conceptual knowledge, consists of facts, rules and principles and the relationships between them. It can be described as 'knowing that'.
<b><u>Procedural Knowledge</u></b>	In contrast, procedural knowledge is knowledge of methods or processes that can be performed. It can be described as 'knowing how'

### **Examples of declarative and procedural knowledge in computing**

<b><u>Form of knowledge</u></b>	<b><u>Computer science</u></b>	<b><u>Information technology</u></b>	<b><u>Digital literacy</u></b>
	The fundamental principles of computer science including, algorithms, programming, computational thinking, testing, debugging, networks, the internet and the WWW.	Applying computer systems to solve problems. Finding things out, exchanging and sharing information, reviewing, modifying and evaluating work.	Create digital artifacts, express oneself, develop and present information and ideas using a range of digital technologies.
<b><u>Declarative</u></b>	Programming syntax The purpose and function of different logic gates	Principles of effective multimedia design Spreadsheet formulae	Features of unreliable content

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<b><u>Procedural</u></b>	Performing binary addition Implementing a repeat in a programming language	Setting up a slide master Applying conditional formatting	How to perform an advanced web search
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### On-Line Safety is taught using the 'Education for a Connected World' documentation

 <p><b>Self-image and identity</b></p> <p>This strand explores the differences between online and offline identity beginning with self-awareness, shaping online identities and media influence in propagating stereotypes. It identifies effective routes for reporting and support and explores the impact of online technologies on self-image and behaviour.</p>	 <p><b>Online relationships</b></p> <p>This strand explores how technology shapes communication styles and identifies strategies for positive relationships in online communities. It offers opportunities to discuss relationships, respecting, giving and denying consent and behaviours that may lead to harm and how positive online interaction can empower and amplify voice.</p>	 <p><b>Online reputation</b></p> <p>This strand explores the concept of reputation and how others may use online information to make judgements. It offers opportunities to develop strategies to manage personal digital content effectively and capitalise on technology's capacity to create effective positive profiles.</p>	 <p><b>Online bullying</b></p> <p>This strand explores bullying and other online aggression and how technology impacts those issues. It offers strategies for effective reporting and intervention and considers how bullying and other aggressive behaviour relates to legislation.</p>
 <p><b>Managing online information</b></p> <p>This strand explores how online information is found, viewed and interpreted. It offers strategies for effective searching, critical evaluation of data, the recognition of risks and the management of online threats and challenges. It explores how online threats can pose risks to our physical safety as well as online safety. It also covers learning relevant to ethical publishing.</p>	 <p><b>Health, well-being and lifestyle</b></p> <p>This strand explores the impact that technology has on health, well-being and lifestyle e.g. mood, sleep, body health and relationships. It also includes understanding negative behaviours and issues amplified and sustained by online technologies and the strategies for dealing with them.</p>	 <p><b>Privacy and security</b></p> <p>This strand explores how personal online information can be used, stored, processed and shared. It offers both behavioural and technical strategies to limit impact on privacy and protect data and systems against compromise.</p>	 <p><b>Copyright and ownership</b></p> <p>This strand explores the concept of ownership of online content. It explores strategies for protecting personal content and crediting the rights of others as well as addressing potential consequences of illegal access, download and distribution.</p>

### Implementation

All Year groups from Y1 – Y6 at Cayton School will follow **'Teach Computing'** which was introduced in September 2024, in line with the National Curriculum. Teaching and learning will show clear progression across each year group. This ensures the children's skills will build on previous years' skills in all three elements of computing.

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Computing has strong links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. It can also enhance the teaching and learning; therefore Computing will be used in as many subjects as possible, allowing for cross curricular links. This provides opportunities for the children to see the benefits of becoming digitally literate. By implementing computing in different subjects, this allows the children to use a variety of programmes encouraging the creativity and confidence to express themselves. Ultimately, by not restricting computing to just our computing lessons will allow the children to see how computing can be used not only in different subjects but also into everyday life.

All staff will have had CPD training on computing and e-safety.

The Computing Subject Leader will provide training and/or signpost staff to relevant apps and programmes, so that all staff are confident in their use of technology.

A clear and effective, bespoke cross curricular scheme of work that provides coverage in line with the National Curriculum. Teaching and learning should facilitate progression across all key stages within the threads of:-

Computing systems and networks

Creating Media

Programming (A and B)

Data and information

On-line Safety

- Access to resources which aid in the acquisition of skills and knowledge.
- Children will have access to the hardware (computers, netbooks, programmable equipment) and software that they need to develop knowledge and skills of digital systems and their applications
- A clear and effective scheme of work that provides coverage in line with the National Curriculum (Teach Computing).
- Teaching and learning should facilitate progression across all key stages within the strands of digital literacy, information technology and computer science. Children will have the opportunity to explore and respond to key issues such as digital communication, cyberbullying, online safety, security, plagiarism and social media.
- Wider Curriculum links and opportunities for the safe use of digital systems are considered in wider curriculum planning.
- The importance of online safety is shown through displays within the learning environment (classrooms, hall and the ICT suite).
- Parents are informed when issues relating to online safety arise and further information/support is provided if required (CPOMS).
- As well as opportunities underpinned within the scheme of work, children will also spend time further exploring the key issues associated with online safety.

### Impact

- Children will be confident users of technology, able to use it to accomplish a wide variety of goals, both at home and in school.
- Children will have a secure and comprehensive knowledge of the implications of technology and digital systems. This is important in a society where technologies and trends are rapidly evolving.
- Children will be able to apply the British values of democracy, tolerance, mutual respect, rule of law and liberty when using digital systems.

**Children will be able to use technology safely and know what to do to keep themselves safe on-line.**

**We want all children to ultimately leave Cayton School ready for the challenges of the digital world in their future.**