C - Courage	A - Achievement	Y – Your Actions	T - Tolerance	O – Our World	N - Nurturing

Cayton School
Computing Progression Map

Learn from yesterday, seek today and aim for tomorrow

Computing Progression Documents

Cayton School

Learn from yesterday, seek today and aim for tomorrow

Intent							
Cayton School Vision	***"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"***						
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 Knowledge 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	
Intent	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.						
Cayton Awards Culture	C - Courage	A - Achievement	Y – Your Actions	T - Tolerance	O – Our World	N - Nurturing	
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		
Implementation	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.						
Cayton Awards Culture	C - Courage	A - Achievement	Y – Your Actions	T - Tolerance	O – Our World	N - Nurturing	
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	
Cayton Awards	C - Courage	A - Achievement	Y – Your Actions	T - Tolerance	O – Our World	N - Nurturing	

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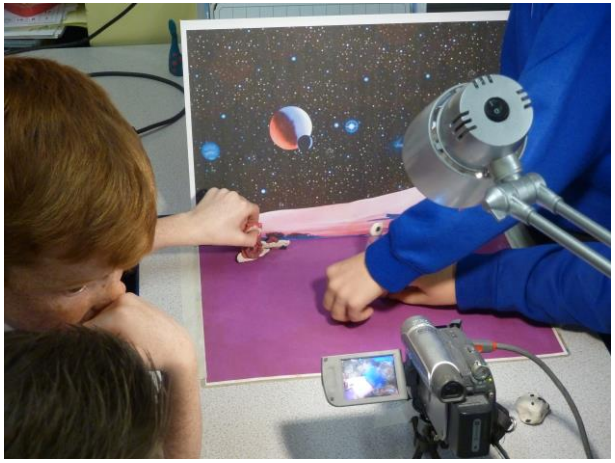
Culture						

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.



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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.

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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 2020 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

Early Years Foundation Stage

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	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

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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

Coding/ Algorithms	• understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions
Programming	• create and debug simple programs
Logical Reasoning	• use logical reasoning to predict the behaviour of simple programs
Multimedia Sound and Motion Using Technology	• use technology purposefully to create, organise, store, manipulate and retrieve digital content
Technology in our lives Uses of IT beyond school	• recognise common uses of information technology beyond school
On-line Safety	• 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

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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

Coding/ Develop Programs	• use sequence, selection, and repetition in programs; work with variables and various forms of input and output
Programming/ Create Programs	• design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
Logical Reasoning	• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
Multimedia Sound and Motion Networks	• 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
Technology in our lives Search engines	• use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
On-line Safety	• use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. •
Using Programmes Handling Data	• select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.

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CS = Computer Science

The fundamental principles of computer science including, algorithms, programming, computational thinking, testing, debugging, networks, the internet and the WWW.

IT = Information Technology

Applying computer systems to solve problems. Finding things out, exchanging and sharing information, reviewing, modifying and evaluating work.

DL = Digital Literacy (including eSafety)

Create digital artifacts, express oneself, develop and present information and ideas using a range of digital technologies.

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Strand/ Thread	1	2	3	4	5	6
Coding **Algorithms** **NC KS1** - understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions **Developing Programs** **NC KS2** –- use sequence, selection, and repetition in programs; work with variables and various forms of input and output	iAlgorithm unit – Computer Science Lesson 1: iFollow •To understand that algorithms are precise instructions that can be followed •To follow a simple algorithm •To devise a simple algorithm Lesson 2: iSilly •To understand that programs execute by following precise and unambiguous instructions Lesson 3: iSay •To plan, test and debug a simple algorithm Lesson 4: iBuild •To make predictions about the outcome of a simple algorithm Lesson 5: iCompose •To understand conditions and outcomes •To understand that some statements can be only true or false iProgram unit 1 – Computer Science Lesson 1: iRobot •To understand that algorithms are implemented as programs on a range of digital devices Lesson 2: iControl •To give instructions to a programmable toy Lesson 3: iPlan •To plan a simple algorithm that controls a toy Lesson 4: iProgram •To program an object to move to on-screen objects Lesson 5: iHunt •To record a sequence of instructions in a common format iProgram unit 2 – Computer Science Lesson 1: iFind Bears •To understand that the order and number of steps in an algorithm correspond to the order and number of actions performed by a person or a computer program	iProgram unit 1 – Computer Science Lesson 1: iSequence •To understand that an algorithm is a process that consists of a series of steps that achieves a specific goal •To understand algorithms can describe everyday activities and can be followed by humans and computers Lesson 2: iInstruct •To understand that algorithms are made up of steps •To know that steps can be repeated •To understand that computers need more precise instructions than humans do Lesson 3: iMonster •To use digital drawing tools (Scratch) to create images iProgram unit 1 – Computer Science Lesson 4: iMove •To program a simple animation involving movement Lesson 5: iSpeak •To write a simple program that produces an output (text or sound) Lesson 6: iCreate •To combine images and text to create a simple animation iProgram unit 2 – Computer Science Lesson 1: iRescue •To program an animation using motion blocks Lesson 2: iBehave •To use sequence, triggers, and movement in computer programs Lesson 3: iExplore •To use sequence, selection and repetition in computer programs Lesson 4: iGrow •To use events, triggers and sequences in programs Lesson 5: iChoose	iProgram – Computer Science Lesson 1: iMove •To understand that a program is a sequence of statements written in a programming language (Scratch) •To program an animation that executes a sequence of statements Lesson 2: iExplore •To understand that computer programs containing graphics use x y coordinates and turns are measured in degrees iProgram – Computer Science Lesson 3: iAnimate •To program a sequence of instructions that create visual effects Lesson 4: iMake Music •To import, create and record sounds •To understand that algorithms and programs can involve repetition Lesson 5: iShape Up •To predict the outcome of a simple algorithm •To use a repeat function to draw a 2D shape Lesson 6: iCreate •To import pictures from a computer and/or the internet •To combine images, sounds and movement to create a personal animation iSimulate – Computer Science Lesson 1: iExplore •To understand that computer simulations can represent real or imaginary situations Lesson 2: iRule •To understand that computer simulations are guided by rules Lesson 3: iAdventure •To explore the effect of changing variables in a simulation using them to make and test predictions Lesson 4: iCircuit	iProgram unit 1 – Computer Science Lesson 1: iMake Blocks •To understand the need to reuse code in programming •To create custom blocks (procedures) in Scratch Lesson 2: iSync •To understand that action can be programmed to synchronise Lesson 3: iScene •To understand that broadcasts can be used to change scenes in Scratch Lesson 4: iDebug •To detect and correct errors in a computer program Lesson 5: iCreate •To understand that code can be remixed and reused to create new content iProgram 2 and 3 – Computer Science Lesson 1: iDraw •To understand that a program is a sequence of statements written in a programming language (TurtleArt) •To program a turtle to execute a sequence of statements Lesson 2: iWrite •To understand that computer programs consist of statements that perform a specific task. •To understand that statements can be altered Lesson 3: iShape Up •To amend an algorithm to change the size of a shape Lesson 4: iRobot •To program a virtual robot to move and draw Lesson 5: iDesign •To design a program that makes choices •To understand that commands and actions can be programmed to be executed depending upon whether a condition is true or not Lesson 6: iFollow •To develop algorithms	iProgram unit 1 – Computer Science Lesson 1: iControl •To understand the difference between games and simulations •To identify the various inputs that computer games can use Lesson 2: iGame •To program a computer game by sequencing conditional statements Lesson 3: iPlan •To understand that the behaviour of a computer program should be planned •To understand that programs are developed according to a plan Lesson 4: iCode •To program an algorithm according to a plan Lesson 5: iDevelop •To develop a program according to a plan Lesson 6: iTest •To develop strategies for testing and debugging computer programs iProgram 2 unit – Computer Science Lesson 1: iExplore •Learn how to create a world and control a character using the Kodu programming environment •To use conditional statements in computer programs (When..Do) Lesson 2: iCode •To program an object to move towards another by sequencing statements Lesson 3: iInput •To amend a computer program to accept user input Lesson 4: iTravel •To program objects to move along paths Lesson 5: iLevel •To understand how to create 'levels' in a computer game Lesson 6: iDesign •To understand that computer programs need to be designed	iProgram unit 1 – Computer Science Lesson 1: iControl •To understand the difference between games and simulations •To identify the various inputs that computer games can use Lesson 2: iGame •To program a computer game by sequencing conditional statements Lesson 3: iPlan •To understand that the behaviour of a computer program should be planned •To understand that programs are developed according to a plan Lesson 4: iCode •To program an algorithm according to a plan Lesson 5: iDevelop •To develop a program according to a plan Lesson 6: iTest •To develop strategies for testing and debugging computer programs iApp unit 1 – Computer Science Lesson 1: iMobile •To understand the value of mobile technology and its future development Lesson 2: iExplore •To explore event-driven programming using a text-based programming language Lesson 3: iPaint •To understand the importance of decomposition (breaking a problem into smaller parts and solve one part at a time) •To understand that variables contain values Lesson 4: iTap •To use algorithms to develop a solution to a problem •To translate algorithms into code •To use abstraction and functions in programs Lesson 5: iPlan

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	Lesson 2: iMove •To understand that the order of commands in a program corresponds to the order of actions performed by a sprite Lesson 3: iTravel •To understand that backgrounds can be used and/or created in projects •To program a sequence of commands that make a sprite move Lesson 4: iBump •To understand that one sprite can be programmed to trigger action for another Lesson 5: iChase •To understand that the speed of sprites can be changed •To understand that different sprites can be programmed to move at different speeds Lesson 6: iAnimate •To storyboard and create a short animation	•To use events, triggers and sequences in programs Lesson 6: iCreate •To understand the importance of planning a computer program	•To understand that simulations can help people try things quickly and inexpensively •To understand that simulations help us understand difficult concepts Lesson 5: iSim •To design and produce a computer simulation or adventure game	•To combine repetition and conditional statements into a program iProgram 3 Lesson 1: iBot •To solve problems by splitting them into smaller parts (decomposition) •To plan and develop algorithms and programs Lesson 2: iRepeat •To use repetition in programs	•To know what to think about when designing a computer program Lesson 7: iDevelop •To program a computer game using a design and plan as a basis Lesson 8: iTest •To develop strategies for testing and debugging computer programs	•To understand that apps are computer programs that are developed according to a plan Lesson 6: iDevelop •To develop an app according to a plan
Skills	To **plan, test** and **debug** a simple algorithm	To **program** a simple algorithm that involves movement**.**	To **design** and produce a computer simulation. To **program** an animation that executes a sequence of statements.	To **detect and correct** errors in a computer program To **use repetition** in programs.	To **identify** the various inputs that computer games can use. To **develop strategies** for **testing** and **debugging** computer programs.	To **program** a computer game by sequencing conditional statements.
Vocabulary	Algorithm, instruction, sequence, program, debug, repeat, true, false	Coding = Algorithm, instruction, sequence, program, debug, repeat	iProgram – Program, sequence, selection, repeat, coordinates, x-y axis, import, test, debug iSimulate – Simulation, rules, choice, variables, pattern, predict, effect	iProgram – Program, sequence, selection, condition, repeat, test, debug, code, instruction, command, variable, execute	iProgram – Sequence, selection, condition, repeat, boolan variable coordinates, x-y axis	iProgram – sequence, selection, condition, repeat, Boolean, variable, procedure, execute, test, debug iApp – Input, output, events, properties, pseudo-code, syntax, assets, parameters, argument, function, procedure, event handler, variable, test, debug

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Strand/ Thread	1	2	3	4	5	6
Programming **NC KS1** - create and debug simple programs **Create Programs** **NC KS2** - design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	iAlgorithm unit – Computer Science Lesson 1: iFollow •To understand that algorithms are precise instructions that can be followed •To follow a simple algorithm •To devise a simple algorithm Lesson 2: iSilly •To understand that programs execute by following precise and unambiguous instructions Lesson 3: iSay •To plan, test and debug a simple algorithm Lesson 4: iBuild •To make predictions about the outcome of a simple algorithm Lesson 5: iCompose •To understand conditions and outcomes •To understand that some statements can be only true or false iProgram unit 1 – Computer Science Lesson 1: iRobot •To understand that algorithms are implemented as programs on a range of digital devices Lesson 2: iControl •To give instructions to a programmable toy Lesson 3: iPlan •To plan a simple algorithm that controls a toy Lesson 4: iProgram •To program an object to move to on-screen objects Lesson 5: iHunt •To record a sequence of instructions in a common format iProgram unit 2 – Computer Science Lesson 1: iFind Bears •To understand that the order and number of steps in an algorithm correspond to the order and number of actions performed by a person or a computer program	iProgram unit 1 – Computer Science Lesson 1: iSequence •To understand that an algorithm is a process that consists of a series of steps that achieves a specific goal •To understand algorithms can describe everyday activities and can be followed by humans and computers Lesson 2: iInstruct •To understand that algorithms are made up of steps •To know that steps can be repeated •To understand that computers need more precise instructions than humans do Lesson 3: iMonster •To use digital drawing tools (Scratch) to create images iProgram unit 1 – Computer Science Lesson 4: iMove •To program a simple animation involving movement Lesson 5: iSpeak •To write a simple program that produces an output (text or sound) Lesson 6: iCreate •To combine images and text to create a simple animation iProgram unit 2 – Computer Science Lesson 1: iRescue •To program an animation using motion blocks Lesson 2: iBehave •To use sequence, triggers, and movement in computer programs Lesson 3: iExplore •To use sequence, selection and repetition in computer programs Lesson 4: iGrow •To use events, triggers and sequences in programs Lesson 5: iChoose	iProgram – Computer Science Lesson 1: iMove •To understand that a program is a sequence of statements written in a programming language (Scratch) •To program an animation that executes a sequence of statements Lesson 2: iExplore •To understand that computer programs containing graphics use x y coordinates and turns are measured in degrees iProgram – Computer Science Lesson 3: iAnimate •To program a sequence of instructions that create visual effects Lesson 4: iMake Music •To import, create and record sounds •To understand that algorithms and programs can involve repetition Lesson 5: iShape Up •To predict the outcome of a simple algorithm •To use a repeat function to draw a 2D shape Lesson 6: iCreate •To import pictures from a computer and/or the internet •To combine images, sounds and movement to create a personal animation iSimulate – Computer Science Lesson 1: iExplore •To understand that computer simulations can represent real or imaginary situations Lesson 2: iRule •To understand that computer simulations are guided by rules Lesson 3: iAdventure •To explore the effect of changing variables in a simulation using them to make and test predictions Lesson 4: iCircuit	iProgram unit 1 – Computer Science Lesson 1: iMake Blocks •To understand the need to reuse code in programming •To create custom blocks (procedures) in Scratch Lesson 2: iSync •To understand that action can be programmed to synchronise Lesson 3: iScene •To understand that broadcasts can be used to change scenes in Scratch Lesson 4: iDebug •To detect and correct errors in a computer program Lesson 5: iCreate •To understand that code can be remixed and reused to create new content iProgram 2 and 3 – Computer Science Lesson 1: iDraw •To understand that a program is a sequence of statements written in a programming language (TurtleArt) •To program a turtle to execute a sequence of statements Lesson 2: iWrite •To understand that computer programs consist of statements that perform a specific task. •To understand that statements can be altered Lesson 3: iShape Up •To amend an algorithm to change the size of a shape Lesson 4: iRobot •To program a virtual robot to move and draw Lesson 5: iDesign •To design a program that makes choices •To understand that commands and actions can be programmed to be executed depending upon whether a condition is true or not Lesson 6: iFollow •To develop algorithms	iProgram unit 1 – Computer Science Lesson 1: iControl •To understand the difference between games and simulations •To identify the various inputs that computer games can use Lesson 2: iGame •To program a computer game by sequencing conditional statements Lesson 3: iPlan •To understand that the behaviour of a computer program should be planned •To understand that programs are developed according to a plan Lesson 4: iCode •To program an algorithm according to a plan Lesson 5: iDevelop •To develop a program according to a plan Lesson 6: iTest •To develop strategies for testing and debugging computer programs iProgram 2 unit – Computer Science Lesson 1: iExplore •Learn how to create a world and control a character using the Kodu programming environment •To use conditional statements in computer programs (When..Do) Lesson 2: iCode •To program an object to move towards another by sequencing statements Lesson 3: iInput •To amend a computer program to accept user input Lesson 4: iTravel •To program objects to move along paths	iProgram unit 1 – Computer Science Lesson 1: iControl •To understand the difference between games and simulations •To identify the various inputs that computer games can use Lesson 2: iGame •To program a computer game by sequencing conditional statements Lesson 3: iPlan •To understand that the behaviour of a computer program should be planned •To understand that programs are developed according to a plan Lesson 4: iCode •To program an algorithm according to a plan Lesson 5: iDevelop •To develop a program according to a plan Lesson 6: iTest •To develop strategies for testing and debugging computer programs iApp unit 1 – Computer Science Lesson 1: iMobile •To understand the value of mobile technology and its future development Lesson 2: iExplore •To explore event-driven programming using a text-based programming language Lesson 3: iPaint •To understand the importance of decomposition (breaking a problem into smaller parts and solve one part at a time) •To understand that variables contain values Lesson 4: iTap •To use algorithms to develop a solution to a problem •To translate algorithms into code •To use abstraction and functions in programs Lesson 5: iPlan

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	Lesson 2: iMove •To understand that the order of commands in a program corresponds to the order of actions performed by a sprite Lesson 3: iTravel •To understand that backgrounds can be used and/or created in projects •To program a sequence of commands that make a sprite move Lesson 4: iBump •To understand that one sprite can be programmed to trigger action for another Lesson 5: iChase •To understand that the speed of sprites can be changed •To understand that different sprites can be programmed to move at different speeds Lesson 6: iAnimate •To storyboard and create a short animation	•To use events, triggers and sequences in programs Lesson 6: iCreate •To understand the importance of planning a computer program	•To understand that simulations can help people try things quickly and inexpensively •To understand that simulations help us understand difficult concepts Lesson 5: iSim •To design and produce a computer simulation or adventure game	•To combine repetition and conditional statements into a program iProgram 3 Lesson 1: iBot •To solve problems by splitting them into smaller parts (decomposition) •To plan and develop algorithms and programs Lesson 2: iRepeat •To use repetition in programs	Lesson 5: iLevel •To understand how to create 'levels' in a computer game Lesson 6: iDesign •To understand that computer programs need to be designed •To know what to think about when designing a computer program Lesson 7: iDevelop •To program a computer game using a design and plan as a basis Lesson 8: iTest •To develop strategies for testing and debugging computer programs	•To understand that apps are computer programs that are developed according to a plan Lesson 6: iDevelop •To develop an app according to a plan
Skills	To **plan, test** and **debug** a simple algorithm. To **program** a sequence of commands that make a sprite move.	To **program** a simple algorithm that involves movement**.**	To **design** and produce a computer simulation. To **program** an animation that executes a sequence of statements.	To **detect and correct** errors in a computer program To **use repetition** in programs.	To **identify** the various inputs that computer games can use. To **develop strategies** for **testing** and **debugging** computer programs.	To **program** a computer game by sequencing conditional statements.
Vocabulary	Algorithm, instruction, sequence, program, debug, repeat, true, false	Algorithm, instruction, sequence, program, debug, repeat, test	iProgram – Program, sequence, selection, repeat, coordinates, x-y axis, import, test, debug iSimulate – Simulation, rules, choice, variables, pattern, predict, effect	iProgram – Program, sequence, selection, condition, repeat, test, debug, code, instruction, command, variable, execute	iProgram – Sequence, selection, condition, repeat, boolan variable coordinates, x-y axis	iProgram – sequence, selection, condition, repeat, Boolean, variable, procedure, execute, test, debug iApp – Input, output, events, properties, pseudo-code, syntax, assets, parameters, argument, function, procedure, event handler, variable, test, debug

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Strand/ Thread	1	2	3	4	5	6
Logical Reasoning **NC KS1** - use logical reasoning to predict the behaviour of simple programs **NC KS2** - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	iAlgorithm unit – Computer Science Lesson 1: iFollow •To understand that algorithms are precise instructions that can be followed •To follow a simple algorithm •To devise a simple algorithm Lesson 2: iSilly •To understand that programs execute by following precise and unambiguous instructions Lesson 3: iSay •To plan, test and debug a simple algorithm Lesson 4: iBuild •To make predictions about the outcome of a simple algorithm Lesson 5: iCompose •To understand conditions and outcomes •To understand that some statements can be only true or false iProgram unit 1 – Computer Science Lesson 1: iRobot •To understand that algorithms are implemented as programs on a range of digital devices Lesson 2: iControl •To give instructions to a programmable toy Lesson 3: iPlan •To plan a simple algorithm that controls a toy Lesson 4: iProgram •To program an object to move to on-screen objects Lesson 5: iHunt •To record a sequence of instructions in a common format iProgram unit 2 – Computer Science Lesson 1: iFind Bears •To understand that the order and number of steps in an algorithm correspond to the order and number of actions performed by a person or a computer program	iProgram unit 2 – Computer Science Lesson 1: iRescue •To program an animation using motion blocks Lesson 2: iBehave •To use sequence, triggers, and movement in computer programs Lesson 3: iExplore •To use sequence, selection and repetition in computer programs Lesson 4: iGrow •To use events, triggers and sequences in programs Lesson 5: iChoose •To use events, triggers and sequences in programs Lesson 6: iCreate •To understand the importance of planning a computer program	iProgram – Computer Science Lesson 1: iMove •To understand that a program is a sequence of statements written in a programming language (Scratch) •To program an animation that executes a sequence of statements Lesson 2: iExplore •To understand that computer programs containing graphics use x y coordinates and turns are measured in degrees iProgram – Computer Science Lesson 3: iAnimate •To program a sequence of instructions that create visual effects Lesson 4: iMake Music •To import, create and record sounds •To understand that algorithms and programs can involve repetition Lesson 5: iShape Up •To predict the outcome of a simple algorithm •To use a repeat function to draw a 2D shape Lesson 6: iCreate •To import pictures from a computer and/or the internet •To combine images, sounds and movement to create a personal animation iSimulate – Computer Science Lesson 1: iExplore •To understand that computer simulations can represent real or imaginary situations Lesson 2: iRule •To understand that computer simulations are guided by rules Lesson 3: iAdventure •To explore the effect of changing variables in a simulation using them to make and test predictions Lesson 4: iCircuit	iProgram unit 1 – Computer Science Lesson 1: iMake Blocks •To understand the need to reuse code in programming •To create custom blocks (procedures) in Scratch Lesson 2: iSync •To understand that action can be programmed to synchronise Lesson 3: iScene •To understand that broadcasts can be used to change scenes in Scratch Lesson 4: iDebug •To detect and correct errors in a computer program Lesson 5: iCreate •To understand that code can be remixed and reused to create new content iProgram 2 and 3 – Computer Science Lesson 1: iDraw •To understand that a program is a sequence of statements written in a programming language (TurtleArt) •To program a turtle to execute a sequence of statements Lesson 2: iWrite •To understand that computer programs consist of statements that perform a specific task. •To understand that statements can be altered Lesson 3: iShape Up •To amend an algorithm to change the size of a shape Lesson 4: iRobot •To program a virtual robot to move and draw Lesson 5: iDesign •To design a program that makes choices •To understand that commands and actions can be programmed to be executed depending upon whether a condition is true or not Lesson 6: iFollow •To develop algorithms	iCrypto unit – Information Technology Lesson 1: iDecipher •To understand that messages can be sent and received secretly •To learn encrypt/decrypt simple messages Lesson 2: iSignal •To understand signalling is a form of communication •To communicate simple messages through signals Lesson 3: iCode •To understand that messages can be sent electronically over distances •To understand that data can be transmitted as binary (on or off) •To encode and decode Morse code Lesson 4: iShift •To understand that messages have been encrypted/decrypted throughout time •To encode/decode messages using a simple shift cipher Lesson 5: iCrack Code •Understand the algorithm of a simple shift cipher •To use frequency analysis to decipher encrypted text Lesson 6: iEnigma •To understand the importance of cryptography historically and today •To understand how the Enigma Machine operates iProgram 2 unit – Computer Science Lesson 1: iExplore •Learn how to create a world and control a character using the Kodu programming environment •To use conditional statements in computer programs (When..Do) Lesson 2: iCode •To program an object to move towards another by sequencing statements Lesson 3: iInput •To amend a computer program to accept user input	iProgram unit 1 – Computer Science Lesson 1: iControl •To understand the difference between games and simulations •To identify the various inputs that computer games can use Lesson 2: iGame •To program a computer game by sequencing conditional statements Lesson 3: iPlan •To understand that the behaviour of a computer program should be planned •To understand that programs are developed according to a plan Lesson 4: iCode •To program an algorithm according to a plan Lesson 5: iDevelop •To develop a program according to a plan Lesson 6: iTest •To develop strategies for testing and debugging computer programs iApp unit 1 – Computer Science Lesson 1: iMobile •To understand the value of mobile technology and its future development Lesson 2: iExplore •To explore event-driven programming using a text-based programming language Lesson 3: iPaint •To understand the importance of decomposition (breaking a problem into smaller parts and solve one part at a time) •To understand that variables contain values Lesson 4: iTap •To use algorithms to develop a solution to a problem •To translate algorithms into code •To use abstraction and functions in programs Lesson 5: iPlan

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	Lesson 2: iMove •To understand that the order of commands in a program corresponds to the order of actions performed by a sprite Lesson 3: iTravel •To understand that backgrounds can be used and/or created in projects •To program a sequence of commands that make a sprite move Lesson 4: iBump •To understand that one sprite can be programmed to trigger action for another Lesson 5: iChase •To understand that the speed of sprites can be changed •To understand that different sprites can be programmed to move at different speeds Lesson 6: iAnimate •To storyboard and create a short animation		•To understand that simulations can help people try things quickly and inexpensively •To understand that simulations help us understand difficult concepts Lesson 5: iSim •To design and produce a computer simulation or adventure game	•To combine repetition and conditional statements into a program iProgram 3 Lesson 1: iBot •To solve problems by splitting them into smaller parts (decomposition) •To plan and develop algorithms and programs Lesson 2: iRepeat •To use repetition in programs	Lesson 4: iTravel •To program objects to move along paths Lesson 5: iLevel •To understand how to create 'levels' in a computer game Lesson 6: iDesign •To understand that computer programs need to be designed •To know what to think about when designing a computer program Lesson 7: iDevelop •To program a computer game using a design and plan as a basis Lesson 8: iTest •To develop strategies for testing and debugging computer programs iProgram 2 unit – Computer Science Lesson 1: iExplore •Learn how to create a world and control a character using the Kodu programming environment •To use conditional statements in computer programs (When..Do) Lesson 2: iCode •To program an object to move towards another by sequencing statements Lesson 3: iInput •To amend a computer program to accept user input Lesson 4: iTravel •To program objects to move along paths Lesson 5: iLevel •To understand how to create 'levels' in a computer game Lesson 6: iDesign •To understand that computer programs need to be designed •To know what to think about when designing a computer program Lesson 7: iDevelop •To program a computer game using a design and plan as a basis Lesson 8: iTest	•To understand that apps are computer programs that are developed according to a plan Lesson 6: iDevelop •To develop an app according to a plan

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					•To develop strategies for testing and debugging computer programs	
Skills	To **plan, test** and **debug** a simple algorithm. To **program** a sequence of commands that make a sprite move.	To use **events, triggers** and **sequences** in programs.	To **design** and produce a computer simulation. To **program** an animation that executes a sequence of statements.	To **detect and correct** errors in a computer program To **use repetition** in programs.	To **encode/decode** messages using a simple shift cipher.	To **program** a computer game by sequencing conditional statements.
Vocabulary	Algorithm, instruction, sequence, program, debug, repeat, true, false	Algorithm, instruction, sequence, program, debug, repeat, test	iProgram – Program, sequence, selection, repeat, coordinates, x-y axis, import, test, debug iSimulate – Simulation, rules, choice, variables, pattern, predict, effect	iProgram – Program, sequence, selection, condition, repeat, test, debug, code, instruction, command, variable, execute	Cryptography, encrypt, decrypt, cipher, key, shift, binary, frequency analysis iProgram – Sequence, selection, condition, repeat, boolan variable coordinates, x-y axis	iProgram – sequence, selection, condition, repeat, Boolean, variable, procedure, execute, test, debug iApp – Input, output, events, properties, pseudo-code, syntax, assets, parameters, argument, function, procedure, event handler, variable, test, debug

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Strand/ Thread	1	2	3	4	5	6
Multimedia Sound and Motion **Using Technology** **NC KS1 -** use technology purposefully to create, organise, store, manipulate and retrieve digital content **Networks** **NC KS2** - 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	iModel unit – Information Technology Lesson 1: iDress •To understand that computers can show real events and things •To use a mouse to move things accurately on-screen Lesson 2: iDecide •To understand that computers can be used to make choices Lesson 3: iVenture •To understand that a computer can be used to model an environment where choices can be made •To understand that a computer model is not an exact replica of real-life environments and/or scenarios Lesson 4: iRepresent •To create a representation of a real or fantasy game or story iDraw unit – Digital Literacy Lesson 1: iMark •To investigate simple digital mark-making tools Lesson 2: iShape Up •To investigate simple digital mark-making tools Lesson 3: iCopy •To create digital art in the style of an artist Lesson 4: iIllustrate •To explore a range of digital drawing tools Lesson 5: iCompile •To import images and create an eBook iProgram unit 1 – Computer Science Lesson 1: iRobot •To understand that algorithms are implemented as programs on a range of digital devices Lesson 2: iControl •To give instructions to a programmable toy Lesson 3: iPlan •To plan a simple algorithm that controls a toy	iAnimate unit – Information Technology Lesson 1: iFlip •To understand what an animation is •To understand the premise of a stop-frame animation Lesson 2: iDesign •To understand that an animation consists of characters, a stage, props, sound, text and a story Lesson 3: iStoryboard •To understand the importance of a storyboard in the story planning process •To create their own storyboard Lesson 4: iScript •To understand that animations need to be scripted •To create a storyboard Lesson 5: iCreate •To understand that stop-frame animations involve physical characters, settings and props •To work collaboratively in a group to achieve a common goal Lesson 6: iFilm •To create a stop-motion animation Pub unit – Digital Literacy Lesson 1: iFind Out •To understand the world wide web and how it has developed throughout time Lesson 2: iTimeline •To consider how technology changes with time Lesson 3: iPresent •To share knowledge through multi-media presentations Lesson 4: iPlan •To plan/produce a presentation of research findings Lesson 5: iRefine •To create an interactive eBook iBlog – Digital Literacy Lesson 1: iLog In •To know what a blog is and how it will be used in the classroom •To log in to a class blog	iNetwork unit – Computer Science Lesson 1: iMap •To understand what a network is Lesson 2: iConnect •To know key parts of a computer network •To understand how information is exchanged between devices Lesson 3: iNet •To understand that the internet is the physical connections between computers and networks •To understand how data travels throughout a network Lesson 4: iAddress •To understand that devices on networks have a unique address iConnect unit – Digital Literacy Lesson 1: iConnect •To understand that the internet is many computers that are connected •To understand that you can move around the web using hyperlinks Lesson 2: iSurf •To use basic navigation skills to browse the world wide web Lesson 3: iBrowse •To know the main features of web browsers Lesson 4: iSearch •To understand how to find information using a search engine Lesson 5: iCheck •To understand that not all information on the web is reliable •To know the basic steps that can help distinguish safe and credible websites Lesson 6: iHunt •To understand that copyright is an author's right of ownership and it is illegal to steal other people's material	iMail unit – Information Technology Lesson 1: iMessage •To understand that messages can be used to communicate over distance a number of ways Lesson 2: iRetrieve •To understand how email travels and how to retrieve it Lesson 3: iSend •To send and reply to emails Lesson 4: iAttach •To attach a file to an email •To understand the advantages of attaching files to emails Lesson 5: iCollaborate •To use email to communicate ideas	iWeb – Digital Literacy To Lesson 1: iShare •To understand that the world wide web is one of the services offered on the internet •To know that the world wide web consists of many websites and web pages that can be accessed using the internet Lesson 2: iRemix •To understand that many people remix content to work on the world wide web •To know that websites are written in HTML Lesson 3: iHack •To know that HTML gives a web page structure •To change a picture on a web page Lesson 4: iDecode •To read basic HTML code •To understand how HTML provides structure for web content Lesson 5: iPresent •To use research for the creation of a website •To upload an image for insertion into a website	iNetwork unit – Digital Literacy Lesson 1: iConnect •To understand that a computer network is a group of computers that are connected •To know that computer networks allow users to communicate and share Lesson 2: iRoute •To understand that the internet is many networks that are connected to each other •To know that a router sends/receives information as packets of data Lesson 3: iTrace •To know that computers connected to the Internet have their own address •To understand that services involving web pages on the internet are known as the World Wide Web and that websites can be traced to a particular webserver Lesson 4: iSearch •To know that internet search engines maintain, and rank, a list (or index) of other websites available on the world wide web •To use clear search terms when conducting internet searches in order to find things out Lesson 5: iCreate •To know that web pages are written in HTML •To recognise and use basic HTML syntax

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	Lesson 4: iProgram •To program an object to move to on-screen objects Lesson 5: iHunt •To record a sequence of instructions in a common format iWrite – Digital Literacy Lesson 1: iText •To recognise that text can be created in a number of ways Lesson 2: iSentence •To a word processor to create text •To understand that a computer can be connected to a printer Lesson 3: iTell •To select and insert text into a word processor •To open and save a document Lesson 4: iReview •To understand the value of using a word processor to produce text iData unit - Information Technology Lesson 1: iSurvey •To understand why pictograms are useful •To collect and organise information to solve a problem Lesson 2: iRepresent •To create a graph using digital tools Lesson 3: iPresent •To create a pictogram using collected data Lesson 4: Sort • To sort information and present data using a graph iProgram unit 2 – Computer Science Lesson 1: iFind Bears •To understand that the order and number of steps in an algorithm correspond to the order and number of actions performed by a person or a computer program Lesson 2: iMove •To understand that the order of commands in a program corresponds to the order of actions performed by a sprite Lesson 3: iTravel	Lesson 2: iWrite •To know how to respond to the writing of others Lesson 3: iPost •To know how to post on a blog •To know how to respond to someone else's post on the class blog Lesson 4: iJustify •To explain what you think and why Lesson 5: iBlog •To use a blog to demonstrate and share learning Lesson 6: iEvaluate •To reflect on work and make imprvements iProgram unit 2 – Computer Science Lesson 1: iRescue •To program an animation using motion blocks Lesson 2: iBehave •To use sequence, triggers, and movement in computer programs Lesson 3: iExplore •To use sequence, selection and repetition in computer programs Lesson 4: iGrow •To use events, triggers and sequences in programs Lesson 5: iChoose •To use events, triggers and sequences in programs Lesson 6: iCreate •To understand the importance of planning a computer program				

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	•To understand that backgrounds can be used and/or created in projects •To program a sequence of commands that make a sprite move Lesson 4: iBump •To understand that one sprite can be programmed to trigger action for another Lesson 5: iChase •To understand that the speed of sprites can be changed •To understand that different sprites can be programmed to move at different speeds Lesson 6: iAnimate •To storyboard and create a short animation					
Skills	To **use a mouse** to move things accurately on-screen. To **create** a representation of a real or fantasy game or story. To **investigate** simple digital mark-making tools. To **program a sequence** of commands that make a sprite move	To **create** their own storyboard. To **plan/produce** a presentation of research findings. To **program** an animation using motion blocks.	To **use** basic navigation skills to browse the world wide web.	To **send and reply** to emails. To **use email** to communicate ideas.	To **read** basic HTML code. To **change** a picture on a web page.	To **use** clear search terms when conducting internet searches in order to find things out.
Vocabulary	iDraw – Brush, fill, line, shape tools, undo, edit, paint, colour, ebook, import, upload iData – Data, tally, pictogram, information, survey, graph, sort iModel – Model, algorithm, instruction, choice, real, imaginary iProgram – Algorithm, instruction, sequence, program, debug, repeat, true, false iWrite – text, word, processor, key, keyboard, save, print, backspace, return/ enter	iAnimate – Animation, scene, script, motion, storyboard, props, iPub – World Wide Web, network, Internet, device, eBook iBlog – Blog, post, comment, online, audio, video, link, respond, justify iProgram – Algorithm, instruction, sequence, program, debug, repeat, test	iConnect - World Wide Web, network, internet, hyperlink, search, URL, IP address, web, browser, copyright iNetwork – Network, network switch, server, wireless, access point, WAP, WIFI, router, internet, IP address, URL DNS	Email, email address, to, from, privacy, security, inbox, send, receive, server, attachment	World Wide Web, HTML, CSS, element, tags	Network, router, internet, World Wide Web, IP address, URL, data, packet, search engine, rank, HTKM

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Strand/ Thread	1	2	3	4	5	6
Technology in our lives **Uses of IT beyond school** **NC KS1 -** recognise common uses of information technology beyond school **Search Engines** **NC KS2** - use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	iProgram unit 1 – Computer Science Lesson 1: iRobot •To understand that algorithms are implemented as programs on a range of digital devices Lesson 2: iControl •To give instructions to a programmable toy Lesson 3: iPlan •To plan a simple algorithm that controls a toy Lesson 4: iProgram •To program an object to move to on-screen objects Lesson 5: iHunt •To record a sequence of instructions in a common format iWrite – Digital Literacy Lesson 1: iText •To recognise that text can be created in a number of ways Lesson 2: iSentence •To a word processor to create text •To understand that a computer can be connected to a printer Lesson 3: iTell •To select and insert text into a word processor •To open and save a document Lesson 4: iReview •To understand the value of using a word processor to produce text	No unit – Discussions in class about common used of information beyond school To understand that communication can be images, sound and text Class discussion and class email sent	iConnect unit – Digital Literacy Lesson 1: iConnect •To understand that the internet is many computers that are connected •To understand that you can move around the web using hyperlinks Lesson 2: iSurf •To use basic navigation skills to browse the world wide web Lesson 3: iBrowse •To know the main features of web browsers Lesson 4: iSearch •To understand how to find information using a search engine Lesson 5: iCheck •To understand that not all information on the web is reliable •To know the basic steps that can help distinguish safe and credible websites Lesson 6: iHunt •To understand that copyright is an author's right of ownership and it is illegal to steal other people's material	iMail unit – Information Technology Lesson 1: iMessage •To understand that messages can be used to communicate over distance a number of ways Lesson 2: iRetrieve •To understand how email travels and how to retrieve it Lesson 3: iSend •To send and reply to emails Lesson 4: iAttach •To attach a file to an email •To understand the advantages of attaching files to emails Lesson 5: iCollaborate •To use email to communicate ideas	iSafe unit •x6 sessions and ongoing throughout the year Lesson 1: iCommunicate •To explore and identify methods of communication •To understand why people communicate •To understand the risks and benefits of various modes of communication Lesson 2: iPersonal •To understand the concept of personal and private information •To understand safety rules and responsible behaviour when using new technologies •To explore how and why we share information, give information and receive information Lesson 3: iStay Safe •To understand the concept of personal safety in real life and 'online life' •To learn the SMART rules for being online •To explore the difference in communicating face-to-face and online Lesson 4: iTrust •To explore the validity of online content •To begin to make sensible and considered judgments about whether or not to trust it •To compare and contrast different sources of information Lesson 5: iChat •To understand how to chat sensibly and safely •To begin to make sensible and considered judgments about whether or not to trust online content and people when online Lesson 6: iKnow Bullying •To explore the differences and similarities between cyber bullying and more traditional forms of bullying •To understand what to do if confronted with cyber bullying	No unit – Use Search technology effectively when researching materials for other curriculum areas Understand the **most efficient** search engines to use for a specific task

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Skills	To **give instructions** to a programmable toy. To **plan a simple algorithm** that controls a toy. To **record a sequence** of instructions in a common format. To **open and save** a document.		To **use basic navigation** skills to browse the world wide web.	To **send and reply** to emails.	To **explore and identify** methods of communication. To **explore** how and why we share information, give information and receive information. To **explore** the differences and similarities between cyber bullying and more traditional forms of bullying.	
Vocabulary	iProgram – Alogrithm, instruction, sequence, program, debug, repeat, output iWrite - text, word, processor, key, keyboard, save, print, backspace, return, enter	Email, email address, to, from attachment	iConnect - World Wide Web, network, internet, hyperlink, search, URL, IP address, web, browser, copyright	iMail – email, email address, to, from, privacy, security, inbox, send, receive, server, attachment	Topic vocabulary when using search engines to explore and discover using search engines iSafe – Communication, safe, technology, risk, benefit, personal, private, SMART, trust, bullying, cyberbullying	Topic vocabulary when using search engines to explore and discover using search engines

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Strand/ Thread	1	2	3	4	5	6
On-line Safety **NC KS1** - 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 **NC KS2** - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	iSafe unit – Digital Literacy/ esafety Lesson 1: iWatch •To understand what being online may look like, the different feelings we can experience online and how to identify adults who can help Lesson 2: iShare •To understand that photos can be shared online •To understand the importance of seeking permission before sharing a photo •To understand how to identify and approach adults who can help Lesson 3: iPlay •To understand that people online may try to manipulate others, how this can make someone feel and how to identify and approach adults who can help Lesson 4: iPlay More •To understand that people online may try to manipulate others, how this can make someone feel and how to identify and approach adults who can help	iSafe unit – Digital Literacy/ esafety Lesson 1: iDetail To understand what personal information means To understand that personal information is unique to themselves To understand that personal information should only be given to a trusted adult Lesson 2: iCarnival To understand that not everyone you meet is trustworthyTo begin to identify the characteristics of people who are worthy of trust and who can help them make choices that keep them safe Lesson 3: iGame •To understand some of the qualities that makes a person trustworthy •To know when it is wise to turn to a trusted adult for help Lesson 4: iInfo •To understand that emotions can be a tool to help judge unsafe situations •To know how physical sensations can alert us to unsafe situations Lesson 5: iHero •To understand the importance of checking with an adult before participating in an online environment •To begin to be open with trusted adults about online experiences iProgram unit 1 – Computer Science Lesson 4: iMove •To program a simple animation involving movement Lesson 5: iSpeak •To write a simple program that produces an output (text or sound) Lesson 6: iCreate •To combine images and text to create a simple animation	iSafe unit – Digital Literacy/ esafety Lesson 1: iBlock •To recognise when something encountered online does not feel right •To identify some of the risks of sharing publically online •To understand some measures that can be taken to stay safe Lesson 2: iFind Out •To raise awareness about appropriate and inappropriate content for online sharing •To understand potential consequences of sharing without consent Lesson 3: iFriend •To understand some of the ways we can protect ourselves online against manipulation Lesson 4: iFeel •To understand the ways the internet can make young people feel about themselves Lesson 5: iProtect •To understand the need for strong passwords Lesson 6: iChat •To identify several different forms advertising can take online iConnect unit – Digital Literacy Lesson 1: iConnect •To understand that the internet is many computers that are connected •To understand that you can move around the web using hyperlinks Lesson 2: iSurf •To use basic navigation skills to browse the world wide web Lesson 3: iBrowse •To know the main features of web browsers Lesson 4: iSearch •To understand how to find information using a search engine Lesson 5: iCheck •To understand that not all information on the web is reliable	iSafe unit – Digital Literacy/ esafety •x8 sessions and ongoing throughout the year Lesson 1: iPrivate •learn about the benefits of sharing information online, but also about the safety and security risks of sharing certain types of information •understand what type of information can put them at risk for identity theft and other scams •distinguish between personal information, which is safe to share online, and private information, which is unsafe to share Lesson 2: iPower •empathise with those who have received mean and hurtful messages •judge what it means to cross the line from harmless to harmful communication online •generate solutions for dealing with cyberbullying Lesson 3: iSearch •experiment with different keyword searches and compare results •refine searches by using multiple words, synonyms, and alternative words & phrases •draw inferences to explain search results Lesson 4: iRespect •understand plagiarism and its consequences •explain how giving credit is a sign of respect for people's work •talk about when it is acceptable to use people's work, and how to write a citation Lesson 5: iSecure •identify the characteristics of strong passwords •apply characteristics of strong passwords to create new passwords Lesson 6: iKnow Spam •define what spam is	iSafe unit – Digital Literacy/ esafety •x6 sessions and ongoing throughout the year Lesson 1: iCommunicate •To explore and identify methods of communication •To understand why people communicate •To understand the risks and benefits of various modes of communication Lesson 2: iPersonal •To understand the concept of personal and private information •To understand safety rules and responsible behaviour when using new technologies •To explore how and why we share information, give information and receive information Lesson 3: iStay Safe •To understand the concept of personal safety in real life and 'online life' •To learn the SMART rules for being online •To explore the difference in communicating face-to-face and online Lesson 4: iTrust •To explore the validity of online content •To begin to make sensible and considered judgments about whether or not to trust it •To compare and contrast different sources of information Lesson 5: iChat •To understand how to chat sensibly and safely •To begin to make sensible and considered judgments about whether or not to trust online content and people when online Lesson 6: iKnow Bullying •To explore the differences and similarities between cyber bullying and more traditional forms of bullying •To understand what to do if confronted with cyber bullying	iSafe unit – Digital Literacy Lesson 1: iSecure •Recognise the importance of protecting passwords •Know how to create passwords that are hard to guess Lesson 2: iPrivate •Customise privacy settings for the online services •Make decisions about information sharing Lesson 3: iPlay •Put into practice what the children have learnt about privacy and security Lesson 4: iKind •Identify situations of harassment or bullying online •Learn specific ways to respond to bullying when you see it Lesson 5: iUpstand •Learn there are different ways to intervene in a specific situation •Choose how to respond from options that feel safe and appropriate Lesson 6: iNice •Express feelings and opinions in positive, effective ways •Respond to negativity in constructive and civil ways Lesson 7: iTone •Make good decisions when choosing how and what to communicate •Identify situations when it's better to wait to communicate face-to-face •Lesson 8: iGet Help •Recognise that seeking help for oneself or others is a sign of strength •Lesson 9: iReport •Be aware of online tools for reporting abuse

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			•To know the basic steps that can help distinguish safe and credible websites Lesson 6: iHunt •To understand that copyright is an author's right of ownership and it is illegal to steal other people's material	•explore strategies for safely managing unwanted messages •identify different forms of spam junk mail Lesson 7: iCommunicate •compare and contrast online-only friends and in-person, face-to-face friends •analyse why private information should not be given to anyone online without the permission of a trusted adult •debate how to respond if an online-only friend asks them personal questions uncomfortable Lesson 8: iBeat Cyberbullying •empathise with the targets of cyberbullying •recognise some of the key similarities and differences between in-person bullying and cyberbullying •identify strategies for dealing responsibly with cyberbullying iMail unit – Information Technology Lesson 1: iMessage •To understand that messages can be used to communicate over distance a number of ways Lesson 2: iRetrieve •To understand how email travels and how to retrieve it Lesson 3: iSend •To send and reply to emails Lesson 4: iAttach •To attach a file to an email •To understand the advantages of attaching files to emails Lesson 5: iCollaborate •To use email to communicate ideas		
Skills	To **understand** what being online may look like, the **different feelings** we can experience online and how **to identify adults who can help**	To **understand** that **personal information** is u**nique** to themselves	To **identify** some of the **risks** of sharing publicly online	To **identify strategies** for **dealing** responsibly with **cyberbullying** To **send and reply** to emails.	To **identify** different forms of **cyber bullying** To **understand what to do** if confronted with cyber bullying	**Know how to behave** if you **experience harassment**
Vocabulary	Personal information, trusted adult, permission, cyber bullying	On-line Safety = personal, information, trustworthy, untrustworthy, trusted adult, Internet, online	Privacy settings, online, sharing, consent, strong password, manipulation, pressure, advertising, like/dislike, public, private, share, block	Privacy, privacy settings, keywords, copyright, strong password, spam, virus, cyberbullying	iSafe – Communication, safe, technology, risk, benefit, personal, private, SMART, trust, bullying, cyberbullying	iSafe – Privacy, privacy settings, security, two factor verification, encryption, hack, strong password, personal information, bullying, cyberbullying, conflict, bystander, upstander, harassment, report, block, abuse

				iMail – email, email address, to, from, privacy, security, inbox, send, receive, server, attachment		

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Using Programmes Handling Data **KS2 only** 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			iSimulate – Computer Science Lesson 1: iExplore •To understand that computer simulations can represent real or imaginary situations Lesson 2: iRule •To understand that computer simulations are guided by rules Lesson 3: iAdventure •To explore the effect of changing variables in a simulation using them to make and test predictions Lesson 4: iCircuit •To understand that simulations can help people try things quickly and inexpensively •To understand that simulations help us understand difficult concepts Lesson 5: iSim •To design and produce a computer simulation or adventure game iData unit – Information Technology Lesson 1: iRecord •To understand how information in a database is organised Lesson 2: iCompare •To understand the advantages of a computer based database over a paper one Lesson 3: iAdd •To find and enter information to create additional records in a database Lesson 4: iTravel •To demonstrate the knowledge skills and understanding they have learned during this unit iPodcast unit – Digital Literacy Lesson 1: iRecord •To understand that technology can be used to control sound Lesson 2: iEdit •To understand that sound can be stored digitally Lesson 3: iPodcast •To understand what a podcast is •To plan and record a podcast Lesson 4: iRefine	iData unit – Information Technology Lesson 1: iBinary •To understand that computers represent data as numbers and count using switches of 'on' and 'off' (0 and 1) Lesson 2: iSort •To sort record cards using field names Lesson 3: iEnter •To understand that information can be stored as numbers, text and choices (e.g. yes/no) •To understand that storing information in an organised way helps answer questions Lesson 4: iSearch •To search a database to answer questions Lesson 5: iChart •To use the information in a database to create a simple chart iAnimate unit - Digital Literacy Lesson 1: iFlip •To understand what an animation is Lesson 2: iDraw •To create a scene for an animation Lesson 3: iFrame •To understand that animations can be created using digital tools Lesson 4: iScene •To create an animated scene Lesson 5: iProduce •To storyboard and create a short animation	iDraw unit – Information Technology Lesson 1: iCreate •To understand that digital tools can be used to create images Lesson 2: iShape •To understand that vector images are made up of shapes and lines Lesson 3: iDetail •To use digital tools to improve detail in images Lesson 4: iLayer •To understand that vector images are constructed of layers Lesson 5: iDesign •To design vector images •To create vector images •To evaluate images and make improvements iWeb – Digital Literacy To Lesson 1: iShare •To understand that the world wide web is one of the services offered on the internet •To know that the world wide web consists of many websites and web pages that can be accessed using the internet Lesson 2: iRemix •To understand that many people remix content to work on the world wide web •To know that websites are written in HTML Lesson 3: iHack •To know that HTML gives a web page structure •To change a picture on a web page Lesson 4: iDecode •To read basic HTML code •To understand how HTML provides structure for web content Lesson 5: iPresent •To use research for the creation of a website •To upload an image for insertion into a website	iData unit – Information Technology Lesson 1: iCell •To identify some parts of a spreadsheet •To identify cell references Lesson 2: iWork it Out •To understand that spreadsheets can be used to store numerical data and to make calculations •To understand that recalculations with different values can be done quickly Lesson 3: iCalculate •To enter a formula to calculate totals •To enter numerical data into cells Lesson 4: iRecord •To understand that graphs and charts can be created and easily be changed from spreadsheet data Lesson 5: iSum •To understand the SUM function can be used to create formulas that will perform addition calculations •To use a spreadsheet to model a costing exercise iModel unit – Information Technology Lesson 1: iShape •To understand the difference between 2D and 3D shapes •To become familiar with basic 3D modelling tools Lesson 2: iDesign •To understand that graphical models can easily be changed Lesson 3: iDevelop •To use features of graphical modelling software to develop a 3D model Lesson 4: iEvaluate •To evaluate and improve 3D models

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			•To use digital tools to edit a podcast Lesson 5: iMix •To combine audio sound and effects Lesson 6: iEvaluate •To identify the good features of a podcast •To suggest improvements for a podcast			
Skills			To **understand** how information in a **database** is **organised.** To **explore** the effect of changing variables in a simulation using them to make and test predictions.	To **create** an animated scene To **sort** record cards using field names	To **design** vector images To **create** vector images To **evaluate** images and make improvements	To **use features** of graphical modelling software to develop a 3D model. To **evaluate and improve** 3D models To add images to 3D models
Vocabulary			iData – Field, record, data, database, search, sort iPodcast – Podcast, audio, record, effects, track, edit, trim, crop, effects iSimulate – Simulation, rules, choice, variables, pattern, predict, effect	iAnimate – Animation, frame, frame rate, frames per second, CGI, layer, forward/ backward iData – Data, database, record, file, field, search, sort, chart	iDraw – vector, canvas, resize, rotate, fill, stamp, group, layer, zoom, send to front, send to back, bring forward, send backwards iWeb – World Wide Web, HTLM, CSS, element, tags	iData - Spreadsheet, worksheet, column, row, cell, cell reference, data, formula, range, SUM iModel – 2D, 3D, dimensions, model, graphics, resize, rotate, design, evaluate, pan, orbit, zoom, group, workspace, import, component, amend, improve

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Implementation

- 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 **Coding** (Algorithms/ Creating Programs), **Programming**, **Logical Reasoning**, **Multimedia Sound and Motion** (Using Technology/ Networks), **Technology in our Lives** (Uses of IT beyond school, Search Engines), **Using Programs** (Handling Data), **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 (icompute).
- 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.