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Cavendish Close Junior Academy

Computing Intent and Implementation

At Cavendish Close Junior Academy, we aim to deliver a curriculum that helps children to **Aspire, Collaborate and Experience** a variety of opportunities.

Intent

1.	Use technology safely and responsibly
2.	Be confident and creative ICT users
3.	To design, write and debug programs
4.	Collaborate and communicate online
5.	Apply computing across the curriculum

Intent explanation

1.	It is our intention that all children use technology safely, respectfully and responsibly, that they recognise acceptable/unacceptable behaviour; and know how and when to report concerns.
2.	It is our intention that all children are responsible, competent, confident and creative users of information and communication technology through carefully planned and sequenced lessons.
3.	It is our intention that all children have the opportunity to design, write and debug programs to accomplish specific goals. That they learn through solving problems and develop their logical reasoning through carefully sequenced lessons.
4.	It is our intention that all children can collaborate and communicate through computer networks and to experience the opportunities that this provides.
5.	It is our intention that children have the opportunity to incorporate computing into the wider curriculum and aspire to develop their understanding analysis and evaluation techniques.

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Long term curriculum coverage

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
3	**Digital Literacy –** iPad Induction lessons 1:1 Devices & Online Safety 3.2	**Information Technology – Data** Branching databases: Unit 3.6	**Computer Science - Programming-** Events and actions in programs.		**Computer Science – Programming** Microbits Unit 3.1 Volcano Animation unit. (BBC)	
4	**Digital Literacy** iPad Refresher Lessons Online Safety 4.2	**Computer Science- Programming** Making Music Making Music - Unit 4.9	**Information Technology - Data:** Microbit Unit 4.11		**Computer Science Programming:** Coding Purple Mash Unit 4.1	
5	**Digital Literacy** iPad Refresher Lessons Online Safety 5.2	**Information Technology - Data** Flat file databases – Unit 5. 4	**Computer Science Programming:** MicroBit Purple Mash Unit – 5.10 Microbit unit		**Digital Literacy –** Word Processing (5.8)	**Digital Literacy –** Touch Typing PM
6	**Digital Literacy** iPad Refresher Lessons Online Safety lessons 6.2	**Digital Literacy** Networks	**Information Technology - Data**: Unit 6.3 Spreadsheets		**Computer Science - Programming:** Microbits project electrical conductors. Transition unit.	
	Online Safety Sessions – To be delivered using 2BeSafe on Purple Mash throughout the year.					

Our ACE Curriculum

Aspire★Collaborate★Experience

Key Concepts

Key Concepts	Year 3	Year 4	Year 5	Year 6
To Communicate	Ipad induction Online Safety	iPad refresher lessons Online Safety	iPad refresher lessons Online Safety	iPad refresher lessons Online Safety Networks
To Code	Scratch Coding Mirco:Bits	Mirco:Bits Coding	Mirco:Bits	Mirco:Bits Spreadsheets
To Collect	Branching Databases	Mirco:Bits	Flat file Databases	Spreadsheets
To Connect			Word Processing	

Skills progression

Skill	Year 3 and 4	Year 5 and 6
Digital literacy	Children will build on their digital literacy skills throughout their time in Lower Key Stage 2. Children will be given their own 1:1 device as part of the Harmony Trust, Great Place To Learn (GP2L) initiative. Children will explore how this allows them to: • use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Children will continue to develop their digital literacy skills, building on the skills and prior knowledge that they have acquired throughout their learning journey. Children will explore how to 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.
Information technology	Children will continue to build upon their Information Technology skills during their time in LKS2. Within units such as Branching Databases, children will have the opportunity to develop their data analysing and presenting skills. By the end of LKS2 children will be able to evaluate and apply their knowledge of information technology, including using new or unfamiliar technologies (such as Micro:Bits) analytically to solve problems.	By the end of KS2 children will be able to articulate their understanding of a range of data and the ways that this can be represented. Through units such as Flat File Databases and Spreadsheets, children will be able to confidently 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.
Computer Science	Children will continue to develop their knowledge of Computer Science during LKS2. Through units using Micro:Bits and other coding programmes, children will have the opportunity to	By the end of KS2, children will be equipped to use computational thinking and creativity to understand and change the world. Throughout their learning, they will have had the opportunity to

	develop their skills by designing, writing and debugging programs that accomplish specific goals, including controlling or simulating physical systems. Children will continue to explore a range of variables to ensure that they can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic and algorithms.	explore the deep links that Computing has with mathematics, science and design and technology. Children will know that the core of Computing is Computer Science, in which they will have been taught that the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Through their knowledge of Computer Science, children will be prepared to: • solve problems by decomposing them into smaller parts, use sequence, selection, and repetition in programs; work with variables and various forms of input and output. • use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

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Key Lesson Outcomes
Autumn term 1

Year Group	Year 3	Year 4	Year 5	Year 6
Unit Title and description	**Digital Literacy -** iPad Induction lessons 1:1 Devices Online Safety - 3.2	**Digital Literacy – iPad Refresher Lessons** Online Safety 4.2	**Digital Literacy – iPad Refresher Lessons** Online Safety 5.2	**Digital Literacy – iPad Refresher Lessons** Online Safety 6.2
Key Learning	• Be able to use technology safely and respectfully. • Understand that personal information should be kept private. • Be able to identify where to go for help and support if they have concerns about content online.	• Keeping my iPad safe • Keeping myself safe online.	• Keeping my iPad safe • Keeping myself safe online • Understanding cybercrime	• Keeping my iPad safe • Keeping myself safe online • Understanding cybercrime
Key Concepts	To communicate	To communicate	To communicate	To communicate
Lesson outcomes	Across 5 lessons: 1. iPad will be set up 2. Children will set up fingerprint recognition 3. Children will set passcodes. 4. Children will turn on autofill passwords 5. Children will create avatar for lock screen 6. Children will know the apps available.	Ipad Refresher lessons **Online Safety** 1. Recap the acronyms THINK and SMART 2. To recognise when someone is causing harm online 3. To be able to offer advice to the victims of online harm	Ipad Refresher lessons **Online Safety** 1. To understand what cyber-crime is. 2. To know the legal boundaries online. 3. To know that poor choices online can affect your adult life.	Ipad Refresher lessons **Online Safety** 1. To remind ourselves about the SMART and THINK acronyms. 2. To understand what cyber-crime is. 3. To know the legal boundaries online.

	7. Children will understand their responsibilities using their iPad 8. Children will learn what the acronyms THINK and SMART mean. **Online Safety.** 9. To know what makes a safe password, how to keep passwords safe and the consequences of giving your passwords away. 10. To understand how the Internet can be used to help us to communicate effectively. 11. To understand how a blog can be used to help us communicate with a wider audience. 12. To consider if what can be read on websites is always true. 13. To learn about the meaning of age restrictions symbols on digital media and devices. 14. To know where to turn for help if they see inappropriate content or have inappropriate contact from others		4. To know where you can have safe fun – hacking it legal. 5. Understand the key points of the computer misuse act 1990.	4. To know that poor choices online can affect your adult life. 5. To know where you can have safe fun – hacking it legal. 6. Understand the key points of the computer misuse act 1990
Key Vocabulary	Appropriate, Blog, Inappropriate, internet, personal information, password, reputable, permission, reliable, spoof, verify, vlog, website	Think Smart, cyberbullying, digital footprint, online reputation, personal information, privacy settings,	Think Smart, digital content, online behaviour, support sources, password security, image manipulation, identity	Cybercrime, legal boundary hacking, bias, reliability, digital rights, digital responsibilities, online reputation, data protection, GDPR, social media

		password protection, safe searching	theft, appropriate content, critical thinking online	
ACE (Aspire, Collaborate, Experience) links	**Aspire-** To apply online safety principles such as THINK and SMART. **Collaborate-** collaborate with peers to explore iPad features **Experience-** practising safe communication online.	**Aspire-** To understand the THINK and SMART **Collaborate-** role-play scenarios to identify harmful online behaviours **Experience-**analysing real-life examples of online harm	**Aspire-** to understand what cyber-crime is, know the legal boundaries online **Collaborate-** group activities to explore safe and legal online behaviour **Experience-**practical tasks such as identifying examples of cyber-crime	**Aspire-** aspire to understand online safety principles including SMART and THINK. **Collaborate-** group activities to explore safe and legal online behaviour. **Experience-**analysing real-life scenarios of cyber-crime, identifying legal boundaries.

Autumn term 2

Year Group	Year 3	Year 4	Year 5	Year 6
Unit Title and description	**Information Technology Data** Branching databases:	**Making Music** Making Music	**Information Technology DATA** Flat file databases	**Digital Literacy** Networks
Key Learning	• Create and debug simple branching databases. • Plan and create a digital resource for a specific purpose. • Analyse and evaluate data to make improvements	• To identify and discuss the main elements of music. • To understand and experiment with rhythm and tempo. • To create a melodic phrase using varied notes and pitch.	• Search, sort and group data in a database. · • Enter data accurately and understand how fields and records work. · • Design and create a simple database using software. ·	1. To discover what the children know about the Internet. 2.To find out what a LAN and WAN are. 3. To find out how we access the internet in school.

	• Understand how to use YES/NO questions to classify data logically.	• To compose a piece of electronic music.	• Use a database to answer questions and draw conclusions. · • Create graphs and charts using collected data.	4. To research and find out about the age of the internet. 5. To think about what the future might hold.
Key Concepts	**To collect**	**To communicate**	**To communicate**	**To connect**
Lesson outcomes	1. 1.Children understand how YES/NO questions are structured and answered. 2. To complete a branching database using Purple Mash 2Question 3. To plan a digital branching database. 4. 4.To create and debug a branching database 5. To evaluate and present a digital branching database. 6. To apply understanding in a cross-curricular context 7. Children can create a branching database.	1. To identify and discuss the main elements of music 2. To understand and experiment with rhythm and tempo. 1. 3.To create a melodic phrase using varied notes and pitch. 2. I can experiment with pitch, rhythm and melody to create a piece of electronic music. 3. I can add different layers to build up the music through adding multiple patches. 4. To compose a piece of electronic music. 5. Children can create their own simple rhythm using Busy Beats.	1. To understand what a database is and explore example 2. To search and sort a database to find specific information 3. To create a simple database with fields and records. 4. To present data in different formats (charts and graphs). 5. To use a database to solve real-life questions. 6. To design and complete a database project	1. Children know the difference between the World Wide Web and the internet. 2. Children know about their school Network. 3. Children have researched and found out about Tim Berners-Lee. 4. Children have considered some of the major changes in technology which have taken place during their lifetime and the lifetime of their teacher/another adult.
Key Vocabulary	Branching database topic debug, classify, information,	Rhythm, tempo, melody, pitch pulse, texture, melodic, phrase, electronic music	Search, database, field, avatar, Data type, filter, value, analyse, structure, table	LAN WAN, network Internet, World Wide Web, web browser, website, hyperlink,

	binary tree, attribute, debug, decision tree.			search engine, network, router, modem, server, IP address
ACE (Aspire, Collaborate, Experience) links	**Aspire-** plan and create a branching database. **Collaborate-** discussing question structures, sharing ideas for branching database plans **Experience-**hands-on activities such as using Purple Mash 2Question to complete and create branching databases**.**	**Aspire-** understand the main elements of music. **Collaborate-** sharing ideas for rhythms and melodies. **Experience-**creating rhythms in Busy Beats.	**Aspire-** create and design their own database with fields and records. **Collaborate-** working together to search and sort data. **Experience**-exploring example databases.	**Aspire-** research Tim Berners-Lee, and explore major technological changes over time. **Collaborate-** discussing the differences between the internet and the web. **Experience-**exploring their school network.

Spring term 1

Year Group	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Unit Title and description	**Computer Science Programming: Events and actions in programs. (Scratch UNIT)**	**Information Technology DATA:** Micro:Bit	**Computer Science Programming:** MicroBit 5.10	**Information Technology - DATA:** Spreadsheets Unit 6.3
Key Learning	• Be able to design, write and debug programs. • Use sequence, selection and repetition in programs. • Work with variables in different formats.	• Understand how variables can be used to keep track of things in a program. • Understand how inputs, outputs and computer code work together to make control systems.	• Identify possible solutions to the problems. • Earn how inputs (sensors) and outputs (light and sound) of the micro:bit can be used to design and make prototype solutions.	• Know how to navigate a spreadsheet and use cell references accurately. • Be able to organise data using methods like flash fill, convert text to tables, splitting cells and delimiters.

		• Understand what logic is and how it can be used to make different outputs happen according to different inputs. • Have made a Volcano Animation linked to their Geography/History learning.	• Are responsible, competent, confident and creative users of information and communication technology.	• Be able to use formulae to manipulate data efficiently.
Key Concepts	To code	To collect	To code	To code To connect
Lesson outcomes	1. To explain how a sprite moves in an existing project 2. To create a program to move a sprite in four directions 3. To adapt a program to a new context 4. To develop my program by adding features 5. To identify and fix bugs in a program 6. To design and create a maze-based challenge * To achieve full understanding, these objectives will span more than one lesson.	1. To code a micro:bit to make it work as a step counter. 2. To code a micro:bit to make a light switch that switches on or off when the light level changes 3. To code a micro:bit to make a rock, paper and scissors game. 4. To code micro:bits to make simulated dice.	1. To recap the idea of conditional commands. 2. To understand Sensors. 3. To code a micro:bit using gesture inputs, random numbers, variables and logic. 4. To understand variables and how they impact data. 5. To learn how inputs (sensors) and outputs (lights and sound) of the micro:bit can be used to design and make prototype solutions	1. To know what a spreadsheet is. 2. To be able to use basic formulae in Excel 3. To model a situation. 4. To be able to organise data 5. To be able to use more advanced formulae in Excel. 6. To know how to create graphs in Excel
Key Vocabulary	motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design,	Logic, code, input, output variables, infinite, accelerometer random, sensor, simulation.	Debug, Algorithm, Run, Accelerometer, Selection	Auto-fit cell, cell, reference computational, model

	action, debugging, errors, setup, code, test, debug, actions.		If/Then, Gestures, Animation LED, , sensor, less, else, command, simulation, variables.	conditional, formatting, formulae formula, horizontal axis, vertical axis.
ACE (Aspire, Collaborate, Experience) links	**Aspire-** create programs that include movement and selection. **Collaborate-** by sharing ideas for maze designs. **Experience-** hands-on programming tasks such as moving sprites in four directions.	**Aspire-** to code micro:bits for practical applications **Collaborate-** debugging each other's programs **Experience-** programming by writing, testing, and refining code to create interactive micro:bit projects.	**Aspire-** to understand conditional commands, sensors, and variables. **Collaborate-** discussing how sensors and logic can be combined to create interactive projects. **Experience-**coding activities such as using gesture inputs, random numbers, variables, and logic.	**Aspire-** understand what a spreadsheet is, organise data effectively. **Collaborate-** by sharing ideas for organising data. **Experience-**practical tasks such as creating spreadsheets, entering and organising data.

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Spring term 2

Year Group	Year 3	Year 4	Year 5	Year 6
Unit Title and description	**Spring 1 Continued.**	**Animation unit:** **Volcanoes**	**Computer Science Programming:** **microbit – under the sea**	**Spring 1 Continued.** **Spreadsheets.**
Key Learning		• Understand and apply decomposition and flowchart algorithms to plan animations. • Use repetition effectively when programming animations on the micro:bit. • Write, test, debug, and evaluate programs that meet design criteria.	• Understand the problem of bycatch and threats to sea turtles and explore solutions. • Learn how technology can help protect marine life. • Use micro:bit sensors and outputs to design and prototype solutions.	• To organising data in spreadsheets, including structuring data into rows and columns and applying appropriate formatting. • Learn to use formulas with cell references to calculate data, apply operations across ranges, and duplicate formulas efficiently. • To plan an event using a spreadsheet, present data using charts and tables, and evaluate their results.
Key Concepts		To code	To code	To code To connect

Lesson outcomes		1. Understand decomposition and apply it to plan and create a simple animation sequence. 2. Write simple flowchart algorithms and use repetition to create animations in a program. 3. Follow algorithms accurately to write, test, and debug programs that use repetition effectively. 4. explain decomposition and reflect on the steps taken to create an animation using a thinking map.	1. To learn about the problem of 'bycatch' and its impact on marine ecosystems 2. To identify possible solutions to the problem 3. To learn how inputs (sensors) and outputs (lights and sound) of the micro:bit can be used to design and make prototype solutions 4. To discover more about the threats faced by sea turtles 5. To learn about efforts to help them 6. To learn how micro:bit inputs (sensors) and outputs (LED lights) can be used to make a prototype to help protect sea turtles	1. To learn how to collect, structure, and enter data into a spreadsheet. 2. To learn how to format cells appropriately and understand the structure of a spreadsheet. 3. To learn how to use formulas with cell references to produce calculated data. 4. To learn how to apply formulas using different operations and duplicate them across multiple cells. 5. To learn how to create a spreadsheet to plan an event and use formulas to calculate costs. 6. To learn how to present data effectively using charts and tables in a spreadsheet.
Key Vocabulary		Decomposition, algorithm, flowchart, sequence, iteration, repetition, debug, program, code, led, micro:bit, input, output, pattern, predict, evaluate, block,	Debug algorithm, if/then gestures, animation led, output, input, sensor, less, else, command, simulation, variables	Auto-fit cell, cell, reference computational, model conditional, formatting, formulae formula, horizontal axis, vertical axis.

ACE (Aspire, Collaborate, Experience) links		**Aspire-** to use decomposition and algorithms confidently to plan and create animations. **Collaborate**- work together to share ideas, refine flowcharts, and support debugging. **Experience-** apply decomposition, write and test algorithms with repetition.	**Aspire-** to understand the environmental issue of bycatch. **Collaborate-** to research threats to sea turtles, share ideas for solutions. **Experience-** real-world problem-solving by investigating marine conservation challenges.	**Aspire-** to develop confidence in using spreadsheets by learning to structure data. **Collaborate-** plan events, share ideas for formulas. **Experience-** real-world applications by collecting data and calculating costs.

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Summer term 1

Year Group	Year 3	Year 4	Year 5	Year 6
Unit Title and description	**Computer Science: Programming** Micro:bits	**Computer Science programming:** Coding (Logo) 4.1	**Digital Literacy:** PM Word Processing	**Computer Science: Programming:** electrical conductors.
Key Learning	• Explain how simple algorithms solve a given problem • Produce a simple program that completes a given task • Know what input and output devices are and how they are used	• Use the Logo program to draw letters and shapes • Know how to use the repeat and build procedures to create letters and shapes	• Understand the purpose of word processing tools. • Format text and images effectively, including word wrap and styling. • Enhance documents by adding features like tables for better usability.	• Design, write and debug programs that accomplish specific goals. • Solve problems by decomposing them into smaller parts. • Use sequence, selection in programs; work with various forms of input and output. • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
Key Concepts	To code	To code	To connect	To code
Lesson outcomes	1. Understand that a micro:bit is a small computer that requires	1. To learn the structure of the language of Logo. To input simple instructions in Logo.	1. To know what a word processing tool is for. 2. To know what a word processing tool is for.	1. To be able to use variables and inputs to design, code, and evaluate a sports counter on the micro:bit.

	coded instructions to function 2. To create and transfer instructions, and recognise that its LED display can output words, numbers, and pictures. 3. Understand that animations create the illusion of movement through a sequence of timed still images. 4. Understand how inputs and outputs represent the flow of data in and out of computers. 5. Apply knowledge by coding the micro:bit to produce different outputs based on different inputs. 6. Understand how sensor inputs from the micro:bit's accelerometer can detect movement. 7. Know how to create sounds and music using the music editor, to trigger sound outputs.	2. Using 2Logo to create letter shapes 3. To use the Repeat function in Logo to create shapes. 4. To use the procedures in Logo. 5. To create 'flowers' or 'crystals' using Logo.	3. To know how to use word wrap with images and text. 4. To change the look of text within a document. 5. To add features to a document to enhance its look and usability. 6. To use tables within MS Word to present information. 7. To introduce children to templates.	2. To build and debug a countdown timer using variables, Boolean logic, and if…else commands, and combine it with a counter. 3. To apply count-controlled loops and iteration to create an efficient countdown program using a FOR loop. 4. To use functions to improve program efficiency, gather and visualise data, and create a program to measure throw strength. * To achieve full understanding, these objectives will span more than one lesson.

Key Vocabulary	Accelerometer, Animation, Data, Gestures, Hardware, Image, Infinite loop, Input, LED, Repeat, Output, Program, repeat.	Coding, Logo, Turtle, Commands, Movements, Degrees, Rotation Repeat	Word processor, document, formatting, font, text alignment, bullet points, hyperlink, image wrap, table, template	Debug, Algorithm, Code, Test, Run, LED, Output, input, sensor, less, else, command, simulation, variables
ACE (Aspire, Collaborate, Experience) links	**Aspire-** to understand how a micro:bit works, including inputs, outputs, and coding. **Collaborate-** support each other in designing micro:bit projects. **Experience-** programming by coding micro:bits to display animations.	**Aspire-** to understand the structure of Logo commands. **Collaborate-** support each other in using repeat and procedures. **Experience-** programming by creating letters, shapes, and patterns in Logo.	**Aspire**- to understand the purpose of word processing tools and develop skills to format text. **Collaborate-** share ideas for improving document layout. **Experience-**creating professional documents by applying formatting, inserting images and tables.	**Aspire**- to develop advanced coding skills by using variables, loops, and function. **Collaborate-** share strategies for using loops. **Experience-** experience hands-on programming.

Summer term 2

Year Group	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Unit Title and description	**Computer Science – Programming** Volcano Animation unit.	**Computer Science Programming:** Coding Purple Mash Unit 4.1	**Digital Literacy –** Touch Typing	**Computer Science. Programming:** **Transition**
Key Learning	• Explain how simple algorithms solve a given problem.	• To use repetition and count-controlled loops in Logo to create shapes and patterns efficiently.	• Develop accurate typing skills using correct finger placement for letters and punctuation.	• Design, write and debug programs that accomplish specific goals.

	• Produce a simple program that completes a given task • Use a range of input and output devices efficiently. • Know what input and output devices are and how they are use.	• Develop skills in designing algorithms, writing text-based code, debugging, and decomposing tasks into smaller steps. • To be able to create programs that include loops and reusable procedures to produce complex designs.	• Improve speed and fluency by typing words and paragraphs confidently. • Apply keyboard knowledge to format text and enhance documents with features like tables.	• Solve problems by decomposing them into smaller parts. • Use sequence, selection in programs; work with various forms of input and output. • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
Key Concepts	To Code	To Code	To Code To Communicate	To code
Lesson outcomes	1. To know and understand what algorithms are and write algorithms with clear instructions. 2. To write, plan and create LED images 3. To identify patterns and solutions to problems. 4. To use logical reasoning to identify the output of a program. 5. To tinker (experiment) to develop understanding.	1. To learn how accuracy affects programming and how to create simple code snippets by typing commands and adjusting values. 2. To learn how to design and implement algorithms in a text-based language to draw letters and debug programs. 3. To learn what repetition means, how to identify patterns, and how to use	1. Use correct finger placement to type words beginning with K and R, improving keyboard accuracy and speed. 2. Use correct finger placement to type words beginning with L and P, building keyboard fluency. 3. Apply correct finger placement to type words beginning with M and N quickly and accurately.	1. To identify the output in an electrical circuit and use the concept of selection to explain how different conditions affect that output. 2. How selection is represented in flowcharts and use decision boxes to show choices within a process. 3. To review outputs, understand what inputs

	6. To follow an algorithm accurately to create a digital number flashcard 7. To write and debug programs that meets design criteria	count-controlled loops to create repeated shapes. 4. To learn how to predict, modify, and apply count-controlled loops to produce different shapes by changing loop values. 5. To learn how to decompose tasks into smaller steps and use reusable procedures in programs to simplify coding. 6. To learn how to design, write, and debug a program that uses count-controlled loops to create a patterned design.	4. Use secure keyboard knowledge to type a paragraph accurately, including letters, numbers, and punctuation. 5. Apply keyboard skills to type a paragraph accurately and efficiently, maintaining correct finger positioning. 6. Demonstrate secure keyboard knowledge by typing a paragraph accurately and with improved speed.	are, use tinkering to find inputs on the BBC micro:bit, and represent selection with inputs using decision boxes. 4. To plan, write, test, and debug programs that use selection, inputs, and outputs effectively.
Key Vocabulary	Algorithm, program, code, sequence, debug, input, output, micro:bit, led, accelerometer, gesture, delay, pattern, abstraction, predict, evaluate, block, editor, download, run	Algorithm, code snippet, command, debug, loop, count-controlled loop, repeat, procedure, decomposition, logo, turtle, fd (forward), rt (right turn), lt (left turn), to	Keyboard, keys, letters, punctuation, typing, accuracy, speed, paragraph, word wrap, space bar, shift key, enter key, backspace, finger placement, home row, table, document, formatting	Debug, algorithm, code, test, run, led, output, input, sensor, less, else, command, simulation, variables
ACE (Aspire, Collaborate, Experience) links	**Aspire-** to understand algorithms, apply logical reasoning, and develop coding skills.	**Aspire-** master text-based coding by designing algorithms.	**Aspire-** develop accurate and efficient typing skills. **Collaborate-** sharing strategies for finger positioning.	**Aspire-** understand selection in programming.

	Collaborate- Support each other in identifying patterns and solving problems. **Experience-**experimenting with LED outputs and creating interactive projects.	**Collaborate-** support each other in identifying patterns and improving program design. **Experience-**programming by typing commands.	**Experience-** practical typing tasks by applying correct finger placement to type words.	**Collaborate-** share ideas, plan flowcharts, and support each other in debugging programs. **Experience-** tinkering with micro:bit inputs and outputs, creating decision-based programs.

How each intention is met across units of work

Intention 1: Use technology safely and responsibly.			
Year 3	**Year 4**	**Year 5**	**Year 6**
Children will set up fingerprint recognition Children will set passcodes. Children will understand their responsibilities using their iPad Children will learn what the acronyms THINK and SMART mean.	Children will recap the acronyms THINK and SMART Children will recognise when someone is causing harm online Children will be able to offer advice to the victims of online harm Children will practise privacy and password hygiene, and offer appropriate advice to others.	Children will remind themselves about the SMART and THINK acronyms. Children will understand what cyber-crime is. Children will know the legal boundaries online. Children will know that poor choices online can affect your adult life. Children will know where you can have safe fun – hacking it legal. Children will understand the key points of the computer misuse act 1990. Children will understand what cybercrime is and the legal boundaries online (Computer Misuse Act basics), know the long-	Children will remind themselves about the SMART and THINK acronyms. Children will understand what cyber-crime is. Children will know the legal boundaries online. Children will know that poor choices online can affect your adult life. Children will know where you can have safe fun – hacking it legal. Children will understand the key points of the computer misuse act 1990. Children will consolidate digital rights and responsibilities, evaluate reliability and bias online, act responsibly on networks, and use

		term impact of poor choices on digital reputation, and identify safe, legal ways to explore computing.	clear reporting routes when needed.

Intention 2: Be confident and creative ICT users.			
Year 3	**Year 4**	**Year 5**	**Year 6**
Children will understand their responsibilities when using their iPad. Children will learn what the acronyms THINK and SMART mean. Children will create and debug a branching database for a purpose. Children will design and create a simple maze-based challenge using Scratch. Children will plan, run, test and debug programs confidently, using click events, timers and repeat commands. Children will create and debug a branching database for a purpose and use their 1:1 iPad responsibly to support learning across subjects.	Children will compose electronic music using Busy Beats/2Sequence. Children will develop confidence with Micro:bit projects using sensors, variables and logic. Children will create programs that include IF and IF/ELSE statements. Children will use variables and plan algorithms before coding. Children will collaborate to debug and refine programs. Children will compose electronic music using Busy Beats/2Sequence and develop confidence with micro:bit projects using sensors, variables and logic.	Children will design, query and present information using flat-file databases. Children will create well-formatted Word documents using tables and templates. Children will program Micro:bit projects such as temperature sensors, Magic 8 Ball and football simulations using events, selection and variables. Children will apply decomposition and flowcharts to plan and debug programs. Children will design, query and present information with flat-file databases and create well-formatted Word documents using tables and templates.	Children will select and combine tools effectively, using spreadsheets to model, calculate and present data. Children will create graphs and charts to represent data visually. Children will understand and use network services for collaboration. Children will engineer robust programs using loops, functions, and multiple inputs/outputs, testing systematically and correcting errors. Children will select and combine tools effectively, using spreadsheets to model, calculate and present data, and understand network services to collaborate.

Intention 3: Design, write and debug programs			
Year 3	**Year 4**	**Year 5**	**Year 6**
Children will program in Scratch using events and repetition. Will know: sprite, event, sequence, repetition, timer; what a bug is. Children will design a maze challenge, use click events, timer-after/every; repeat blocks; test and debug. Children can improve program flow; explain changes using clear reasoning. Children will complete a working maze projects; annotated code; bug-fix logs.	Children will create Micro:bit programs (step counter, light-trigger switch, rock-paper-scissors, dice) using inputs, random numbers, variables and selection. Children will write Logo programs with loops and reusable procedures to draw shapes/letters/patterns. Children will select when to use loops vs. selection for efficient solutions. Children will document and communicate debugging steps and improvements.	Children will prototype purposeful Micro:bit solutions (temperature display, Magic 8 Ball, football simulation) using events, selection and variables. Children will decompose problems and use flowcharts/pseudocode to plan solutions. Children will test against success criteria and refine accuracy, usability and efficiency. Children will evaluate trade-offs (complexity vs. clarity; speed vs. readability). Children will prototype purposeful micro:bit solutions (temperature sensor, Magic 8 Ball, football simulation) using events, selection and variables, applying decomposition and flowcharts.	Children will engineer robust programs with multiple inputs/outputs, using selection, count/condition loops and functions. Children will build timers/counters and refactor code into functions for reuse and clarity. Children will test systematically (test tables, edge cases) and correct errors. Children will explain and justify algorithmic choices using logical reasoning. Children can use a spreadsheet to solve a problem. Children know that there are ways to represent their data graphically and that spreadsheets can make the process of representing data easier. Children will apply all new spreadsheet skills to solving problems and presenting data.

Intention 4: Collaborate and communicate online (Networks).			
Year 3	**Year 4**	**Year 5**	**Year 6**
Children will contribute to class branching databases and respect others' inputs. Children will use YES/NO classification games with peers to communicate ideas clearly. Children will practise safe communication via guided blog posts (moderated sharing). Children will follow SMART when commenting, sharing and collaborating online.	To be able to offer advice to the victims of online harm. Children will collaborate on musical compositions, dividing roles fairly and combining tracks. Children will share algorithms and peer-debug Micro:bit code, explaining changes and rationale. Children will give and receive constructive feedback to improve shared outcomes. Children will keep shared resources organised (naming, version notes). Children will collaborate on musical compositions, share algorithms and peer-debug micro:bit code, explaining changes to others.	Children will co-author databases and Word documents, using tables and hyperlinks to communicate findings. Children will apply consistent styles and layouts so shared documents are clear and accessible. Children will tailor communication for a real audience. Children will use collaborative features responsibly (track changes, comments). To contribute to a class database. Children can code a story telling game using a 'when gesture' event, random numbers, variables and logic IF/THEN commands. Children will work together via shared databases and Word documents, using tables and hyperlinks to communicate findings to an audience.	Children make a variety of charts using Sheets. Children illustrate their data using sparklines and data bars. Children will understand LAN/WAN basics and work within school network conventions. Children will collaborate on spreadsheets, producing charts and sparklines that clearly tell the data story. Children will share outputs via networked folders/services and present findings to stakeholders. Children will adopt agreed version control and file-naming practices. Children will understand and use school networks, collaborate to share and present spreadsheet findings with charts and sparklines.

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Intention 5: It is our intention that children have the opportunity to incorporate computing into the wider curriculum and aspire to develop their understanding of analysis and evaluation techniques.			
Year 3	**Year 4**	**Year 5**	**Year 6**
Children will create a volcano animation linked to geography/history and explain the algorithm behind it. Children will adjust timing and sequencing to improve clarity and accuracy. Children will evaluate their animation against success criteria and suggest improvements. Children will reflect on how computing helps them communicate learning in other subjects. Children will link computing to geography/history by producing a volcano animation, explain how their algorithm works, and suggest improvements.	Children will connect computing to music by crafting melodic patterns and exploring tempo/pitch effects. Children will apply Micro:bit sensors and logic to simple real-world tasks (e.g., light/reactive outputs). Children will assess the fitness of their digital solutions for purpose and audience. Children will document choices and evaluate creative/technical outcomes. Children can use a variety of notes, experimenting with pitch Children can explore and understand how music is created. Children will connect computing to the music curriculum (elements, tempo, pitch), evaluate their compositions, and apply sensors/logic to real-world micro:bit tasks.	Children will address a real-world brief and justify design decisions. Children will use databases to support geography inquiries and triangulate information sources. Children will evaluate prototypes for impact, feasibility and ethics, iterating designs accordingly. Children will present conclusions supported by data and reflect on improvements. Children can program IF/THEN statements to introduce selection in their code to make things happen based on changing temperature. Children can add hyperlinks to an external website. Children will tackle a real-world brief (e.g., 'Under the Sea' conservation), justify design choices, evaluate impact of prototypes, and use databases to support geography inquiries.	Children will apply computing in science (investigating electrical conductors with micro:bit I/O) and use spreadsheets to plan/cost events, analysing results and evaluating effectiveness. Children will investigate electrical conductors using Micro:bit inputs/outputs and record results. Children will plan and cost events using spreadsheets, applying formulas and visualising data with charts. Children will analyse results, evaluate the clarity/efficiency of digital outputs, and recommend next steps. Children will present findings to an audience, explaining choices and answering questions confidently.

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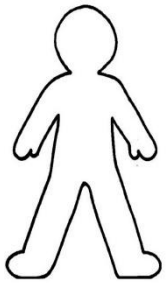
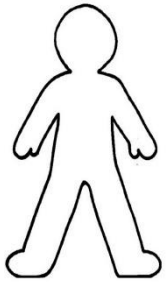
End Points/Impact

1. Will know how to use technology safely and respectfully on an iPad	**A great computer technician in Year 3** 	4.Explore new technology such as microbits.
2. Use and create a branching database for a purpose		5.Apply computing in other subjects.
3. Be able to design, write and debug programs using a sprite.		

1. Will use technology safely, keeping themselves and others safe online recognise online harm and offer appropriate advice.	**A great computer technician in Year 4** 	4. Will code a microbit, collaborate effectively when planning, testing and refining code/music.
2. Compose an electronic piece of music.		5. Children can create and use variables when programming.
3. Write and debug Logo and micro:bit programs.		

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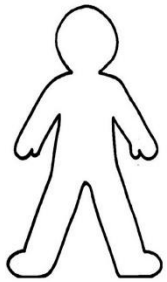
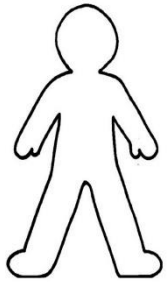
1. Will act safely and responsibly online, understanding cybercrime and legal boundaries.	**A great computer technician in Year 5** 	4. Use word processing, communicate findings.
2. Design and query flat-file databases and produce formatted Word documents.		5. Apply analysis and evaluation to real contexts and justifying design choices.
3. Can prototype purposeful Micro:bit solutions using events, variables and selection.		

1.Will use technology safely with mature judgement.	**A great computer technician in Year 6** 	4. Collaborate and communicate via networks.
2.Select and combine tools effectively to model/present data.		5. Apply computing across the curriculum.
3.Engineer robust Micro:bit programs.		

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Key stage 2

Pupils should be taught to:

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

National Curriculum for KS2

Key stage 1

Pupils should be taught to:

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