COMPUTING

KEY STAGE ONE - YEAR A

	AUTUMN 1	AUTUMN 2	SPRING 1
Description	The children will learn how to map out and decode a simple algorithm	The children will continue to develop their understanding of more complex algorithms and debugging.	The children will learn the basics of how to use Google Docs and begin to learn typing skills
NC Objectives	• 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	• Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions • Create and debug simple programs • Use logical reasoning to predict the behaviour of simple programs	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content • Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. • Recognise common uses of information technology beyond school
Substantive Knowledge	• Children will learn what an algorithm is • Children will learn how to create a simple algorithm • Children will learn that the sequence of algorithms is important • Children will learn to debug simple algorithms • Children will learn that algorithms are implemented as programs on digital devices	• Children will learn what an algorithm is • Children will learn how to create a simple algorithm • Children will learn that the sequence of algorithms is important • Children will learn to debug simple algorithms • Children will learn that algorithms are implemented as programs on digital devices	• Children will learn what Google Docs is • Children will learn how to use the cursor to navigate • Children will learn how to open Google Docs, create and name a new document • Children will learn how to type information into a Google Doc • They will learn how to copy and paste information and images
Disciplinary Skills	• Understand that pressing the up arrow on a BeeBot will move it forward one space. • Understand that pressing the down arrow on a BeeBot will move it backwards one space. • Understand that pressing the right arrow on a BeeBot will spin the BeeBot to the right from the same tile. • Understand that pressing the left arrow on a BeeBot will spin the BeeBot to the left from the same tile. • Understand that sliding the power button to 'on' will give power to my device.	• Understand that pressing the up arrow on a BeeBot will move it forward one space. • Understand that pressing the down arrow on a BeeBot will move it backwards one space. • Understand that pressing the right arrow on a BeeBot will spin the BeeBot to the right from the same tile. • Understand that pressing the left arrow on a BeeBot will spin the BeeBot to the left from the same tile. • Understand that sliding the power button to 'on' will give power to my device.	• Understand how to navigate the Google Suite and select Google Docs • Understand how to use the return key to start a new line • Understand how to use the space bar key to add a space between words • Understand how to use arrow keys to move the text cursor • Understand that the ‘flashing line’ means I am ready to type
Vocabulary	algorithm, debug, forward, backwards, left, right, code, input, pause, predict, program, clear	algorithm, debug, forward, backwards, left, right, code, input, pause, predict, program, clear	Google Doc, cursor, keyboard, return key, space bar, copy and paste
Assessment	Can the child make a simple algorithm with at least four commands and include at least one turn.	Can the child make a more complex algorithm? Can they navigate around a given object and move from point **A** to point **B**?	Can the child create a Google Doc which is named and contains copied information

	SPRING 2	SUMMER 1	SUMMER 2
Description	The children will learn the basics of how to use Google Docs and begin to learn typing skills	The children will create digital art using the iPads	The children will learn to animate a sprite on Scratch Jr and add audio bites into an algorithm
NC Objectives	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content • Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. • Recognise common uses of information technology beyond school	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content • Recognise common uses of information technology beyond school	• 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
Substantive Knowledge	• Children will learn what Google Docs is • Children will learn how to use the cursor to navigate • Children will learn how to open Google Docs, create and name a new document • Children will learn how to type information into a Google Doc • They will learn how to copy and paste information and images	• Children will learn about digital art • Children will learn how to access different applications on an iPad • Children will learn how to use the colour bucket tool • Children will learn how to use the colour pad to select different colours • Children will know how to use a range of tools to create digital art	• Children will learn what an algorithm is • Children will learn how to create a simple algorithm • Children will learn that the sequence of algorithms is important • Children will learn to debug simple algorithms • Children will learn that algorithms are implemented as programs on digital devices • Children will know how to add audio bites by recording their own voice
Disciplinary Skills	• Understand how to navigate the Google Suite and select Google Docs • Understand how to use the return key to start a new line • Understand how to use the space bar key to add a space between words • Understand how to use the arrow keys to move the text cursor • Understand that the ‘flashing line’ means I am ready to type	• Understand how to navigate different applications • Understand how to add lines to a canvas • Understand how to use different tools to create digital art • Understand how to add shapes to the digital art • Understand how to create a digital painting	• Understand how to drag and drop directional inputs to make an algorithm • Understand why the sequence of an algorithm is important • Understand how to debug an algorithm on Scratch Jr • Understand how to record audio using the inbuilt microphone
Vocabulary	Google Doc, cursor, keyboard, return key, space bar, copy and paste	edit, cut, layer, mark up, erase, rub out, pen, pencil, thickness, crop, fill, filter, undo, remove, colour bucket, colours, shapes, canvas, painting, digital	algorithm, animation, blocks, button, code, debug, loop, instructions, repeat, Scratch Jr, sequence, edit
Assessment	Can the child create a Google Doc which is named and contains copied information	Can the child use a range of tools to create digital art based on a given artist	I will be able to create a digital animation that includes a moving sprite of my choice, an edited background and a simple audio block in an algorithm.

COMPUTING

KEY STAGE ONE - YEAR B

	AUTUMN 1	AUTUMN 2	SPRING 1
Description	The children will learn to program a Beebot with a simple algorithm.	The children will continue to develop their understanding of writing more complex algorithms.	The children will learn the basics of how to use Google Docs and begin to learn typing skills
NC Objectives	• 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	• Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions • Create and debug simple programs • Use logical reasoning to predict the behaviour of simple programs	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content • Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. • Recognise common uses of information technology beyond school
Substantive Knowledge	• Children will learn what an algorithm is • Children will learn how to create a simple algorithm • Children will learn that the sequence of algorithms is important • Children will learn to debug simple algorithms • Children will learn that algorithms are implemented as programs on digital devices	• Children will learn what an algorithm is • Children will learn how to create a simple algorithm • Children will learn that the sequence of algorithms is important • Children will learn to debug simple algorithms • Children will learn that algorithms are implemented as programs on digital devices	• Children will learn what Google Docs is • Children will learn how to use the cursor to navigate • Children will learn how to open Google Docs, create and name a new document • Children will learn how to type information into a Google Doc • They will learn how to copy and paste information and images
Disciplinary Skills	• Understand that pressing the up arrow on a BeeBot will move it forward one space. • Understand that pressing the down arrow on a BeeBot will move it backwards one space. • Understand that pressing the right arrow on a BeeBot will spin the BeeBot to the right from the same tile. • Understand that pressing the left arrow on a BeeBot will spin the BeeBot to the left from the same tile. • Understand that sliding the power button to 'on' will give power to my device.	• Understand that pressing the up arrow on a BeeBot will move it forward one space. • Understand that pressing the down arrow on a BeeBot will move it backwards one space. • Understand that pressing the right arrow on a BeeBot will spin the BeeBot to the right from the same tile. • Understand that pressing the left arrow on a BeeBot will spin the BeeBot to the left from the same tile. • Understand that sliding the power button to 'on' will give power to my device.	• Understand how to navigate the Google Suite and select Google Docs • Understand how to use the return key to start a new line • Understand how to use the space bar key to add a space between words • Understand how to use arrow keys to move the text cursor • Understand that the ‘flashing line’ means I am ready to type
Vocabulary	algorithm, debug, forward, backwards, left, right, code, input, pause, predict, program, clear	algorithm, debug, forward, backwards, left, right, code, input, pause, predict, program, clear	Google Doc, cursor, keyboard, return key, space bar, copy and paste
Assessment	Can the child debug a given algorithm and edit the algorithm to create the course.	Can the child make a more complex algorithm? Can they navigate around a given object and move from point **A** to point **B**?	Can the child create a Google Doc which is named and contains copied information

	SPRING 2	SUMMER 1	SUMMER 2
Description	The children will learn the basics of how to use Google Slides and begin to learn typing skills	The children will learn how to develop digital photography	The children will learn to program Scratch Junior with a simple algorithm.
NC Objectives	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content • Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. • Recognise common uses of information technology beyond school	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content • Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. • Recognise common uses of information technology beyond school	• 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
Substantive Knowledge	• Children will learn what Google Slides is • Children will learn how to use the cursor to navigate • Children will learn how to open Google Slides, create and name a new slide • Children will learn how to type information into a Google Slides presentation • They will learn how to copy and paste information and images	• Children will learn how to take a good photo • Children will learn how to centre the focus of a photo • Children will learn how to add lighting and effects • Children will learn how to edit photos	• Children will learn what an algorithm is • Children will learn how to create a simple algorithm • Children will learn that the sequence of algorithms is important • Children will learn to debug simple algorithms • Children will learn that algorithms are implemented as programs on digital devices
Disciplinary Skills	• Understand how to navigate the Google Suite and select Google Slides • Understand how to open multiple tabs in one window to manage information • Understand how to use the right-click function to copy and paste information from the internet	• Understand how to use the iPads with greater accuracy • Understand how to access the camera app • Understand how to frame a photo • Understand how to use the camera with a landscape lens • Understand how to use the camera with a portrait lens • Understand how lighting affects the photo • Understand how to take a photo using the shutter button	• Understand how to drag and drop directional inputs to make an algorithm • Understand why the sequence of an algorithm is important • Understand how to debug an algorithm on Scratch Jr
Vocabulary	Google Slides, right click, tabs, information	portrait, landscape, rotate, lens, photo, photograph, shutter, lighting, effects, zoom, flash,	algorithm, animation, blocks, button, code, debug, loop, instructions, repeat, Scratch Jr, sequence, edit
Assessment	Can the child create a Google Slide which is named and contains copied information	Can the child take a photo with the focus in the centre and use lighting to create effect	Can the child create and debug an algorithm on Scratch Jr

COMPUTING

LOWER JUNIORS - YEAR A

	AUTUMN 1	AUTUMN 2	SPRING 1
Description	The children will learn how to use their emails, Google Drive & Google Docs	The children will create a game using coding software Scratch, with a focus on loops	The children will create a game using coding software Scratch, with a focus on loops
NC Objectives	• 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 • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• 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.	• 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.
Substantive Knowledge	• Children will learn that a username and password is required to log into my laptop. • Children will learn how to use the typing cursor (I) to start typing. • Children will learn that the 'flashing line' is required to begin typing. • Children will learn that I can use the 9 dots to access different apps in the G Suite. • Children will learn how to access my school email account and send an email.	• Children will learn how to make an algorithm and use it when programming. • Children will learn how to decompose tasks (such as animations) into separate steps to create an algorithm • Children will learn that abstraction focuses on important information • Children will learn how toIdentify patterns in an algorithm. Children will learn how to use repetition in algorithms. • Children will learn how to use logical reasoning to detect and correct errors in programs.	• Children will learn how to make an algorithm and use it when programming. • Children will learn how to decompose tasks (such as animations) into separate steps to create an algorithm • Children will learn that abstraction focuses on important information • Children will learn how toIdentify patterns in an algorithm. Understand how to use repetition in algorithms. • Children will learn how to use logical reasoning to detect and correct errors in programs.

Disciplinary Skills	• Understand how to access my email, create a draft and send this to a friend.
	• Understand that once an email is sent, there is no way to get this back and what to do if someone says something unkind to you.
	• Understand how to access Google Docs
	• Understand how to use the typing cursor to create words
	• Understand how to use Google Drive to retrieve digital content
		• Understand how to write a complex algorithm to create a game.
		• Understand how to decompose tasks and debug my algorithm
		• Understand how to use a loop to repeat an action in a program (e.g. make a sprite move in a square or circle).
		• Understand that conditionals (e.g. "if/then" blocks) allow the program to make decisions.
		• Understand how to create and use a variable in a program (e.g. keeping score in a game or tracking time).
		• Understand how to use directional commands to create an algorithm.
			• Understand how to write a complex algorithm to create a game.
			• Understand how to decompose tasks and debug my algorithm
			• Understand how to use a loop to repeat an action in a program (e.g. make a sprite move in a square or circle).
			• Understand that conditionals (e.g. "if/then" blocks) allow the program to make decisions.
			  ◦ Understand how to create and use a variable in a program (e.g. keeping score in a game or tracking time).
			  ◦ Understand how to use directional commands to create an algorithm.

Vocabulary	Attachment, BCC (blind carbon copy), Cc (carbon copy), compose, email, email account, email address, inbox, link,	algorithm, animation, application, code, code block, coding application, debug, decompose, interface, game,	Algorithm, animation, application, code, code block, coding application, debug, decompose, interface, game,

	password, responsible digital citizen.	loop, predict, program, remixing code, repetition code, review, scratch, sprite, tinker	loop, predict, program, remixing code, repetition code, review, scratch, sprite, tinker
Assessment	I will have an email thread that has been sent to a friend using BCC and CC.	To make a game using the skills learned from 'The Magic Carpet'.	To design and create a game using similar code to 'The Magic Carpet'.

	SPRING 2	SUMMER 1	SUMMER 2
Description	To create a stop-frame animation video	To use Google Sheets to collect data and turn this into a graph	To use Micro:bit software to create a times table tester.
NC Objectives	• 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. • 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 responsibility; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• 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. • 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 responsibility; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• 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.
Substantive Knowledge	• Children will learn what a stop-frame animation is • Children will learn how stop-frame animations are made • Children will learn how to create a short story to develop into a film • Children will learn how to create a series of photos to create their stop-frame animation	• Children will learn how to access Google Sheets • Children will learn how to input data into a simple spreadsheet • Children will learn what a cell is and the importance of these when collecting data • Children will learn basic formulas and how to enter these into a spreadsheet	• Children will learn about directional commands to create a simple algorithm • Children will learn to write increasingly more precise algorithms for use when programming • Children will learn to use simple selection in algorithms • Children will learn to use logical reasoning to detect and correct errors in programs • Children will learn to decompose tasks (such as animations) into separate steps to create an algorithm.
Disciplinary	• Understand how to create a series of pictures using stop-frame software	• Understand how to open Google Sheets • Understand how to type text and numbers into cells	• Understand how to debug a complex algorithm that has been given to me by an adult

Skills	• Understand how to create a flip book style by taking a series of images that are slightly adjusted • Understand why little changes are needed for each frame • Understand how to use the iMotion suite • Understand the term onion skimming and what this technique is used for	• Understand how to select and format cells • Understand how to resize columns to fit data correctly • Understand how to copy and paste data into different cells • Understand how to enter data into a simple graph	• Understand how to adapt the code that (has been provided by an adult) to change the outcome • Understand how to use coding blocks to create an algorithm • Understand how to debug my algorithm if something is not working • Understand how to use logical reasoning when debugging my code
Vocabulary	Animations, clips, frame, stop motion, animation, onion skimming, stills, focus, frame, portrait, landscape, rotate, lens, photo, photograph, shutter, lighting, effects, zoom, flash	log in, log out, mouse, pointer, cursor, username, password, taskbar pop up, track pad, keyboard, enter, backspace, copy, paste, screen, account, Google Document, Document, page, computer, laptop, graph, sum, spreadsheet, cells, format, columns, rows, formula, data, table	Broadcast block, Code blocks, Conditional, Coordinates, Decomposition, Features, Game, Information, Negative numbers, Orientation, Parameters, Position, Program, Project, Script, Sprite, Stage, Tinker, Variables, Algorithm, Code, Computational thinking, Decomposition, Input, Logical reasoning, Output, Pattern recognition, Script, Sequence, Variable
Assessment	Can the child make a simple stop-frame animation using the iMotion suite	Can the child make their own graph based on a set of data that has been collected	To create my own times tables tester.

COMPUTING
LOWER JUNIORS - YEAR B

	AUTUMN 1	AUTUMN 2	SPRING 1
Description	The children will learn how to use their emails, Google Drive & Google Docs	The children will create a game using coding software Scratch, with a focus on conditional blocks	The children will create a game using coding software Scratch, with a focus on conditional blocks
NC Objectives	• 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 • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• 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.	• 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.
Substantive Knowledge	• Children will learn that a username and password is required to log into my laptop. • Children will learn to use the typing cursor (I) to start typing. • Children will learn that the 'flashing line' is required to begin typing. • Children will learn that I can use the 9 dots to access different apps in the G Suite. • Children will learn how to access my school email account and send an email.	• Children will learn how to access the Scratch app via the iPad • Children will learn how to make a game based on the coding of 'The Magic Carpet' • Children will learn how to use conditional blocks for if-then scenarios in their code • Children will learn how to string block code together to make a game	• Children will learn how to make an algorithm to use when programming • Children will learn how to decompose tasks into separate steps to create an algorithm • Children will learn that abstraction focuses on important information • Children will learn to identify patterns in an algorithm and use repetition in algorithms • Children will learn to use logical reasoning to detect and correct errors in programs.
Disciplinary Skills	• Understand how to access my email, create a draft and send this to a friend. • Understand that once an email is sent, there is no way to get this back and what to do if someone says something unkind to you. • Understand how to access Google Docs • Understand how to use the typing cursor to create words • Understand how to use Google Drive to retrieve digital content	• Understand how to make an algorithm and use it when programming. • Understand how to decompose tasks (such as animations) into separate steps to create an algorithm • Understand that abstraction focuses on important information • Understand how to spot patterns in an algorithm and use repetition in algorithms. • Understand how to use logical reasoning to detect and correct errors in programs • Understand how to use conditional blocks in a sequence to create a game	• Understand how to make an algorithm and use it when programming. • Understand how to decompose tasks (such as animations) into separate steps to create an algorithm • Understand that abstraction focuses on important information • Understand how to spot patterns in an algorithm and use repetition in algorithms. • Understand how to use logical reasoning to detect and correct errors in programs • Understand how to use conditional blocks in a sequence to create a game
Vocabulary	Attachment, BCC (blind carbon copy), Cc (carbon copy), compose, email, email account, email address, inbox, link, password, responsible digital citizen.	algorithm, animation, application, code, code block, coding application, debug, decompose, interface, game, loop, predict, program, remixing code, repetition code, review, scratch, sprite, tinker	algorithm, animation, application, code, code block, coding application, debug, decompose, interface, game, loop, predict, program, remixing coe, repetition code, review, scratch, sprite, tinker
Assessment	I will have an email thread that has been sent to a friend using BCC and CC.	To make a game using the skills learned from 'The Magic Carpet'.	To make a game using the skills learned from 'The Magic Carpet'.

	SPRING 2	SUMMER 1	SUMMER 2
Description	To edit and layer different photographic images	To use Google Sheets to collect data and format this data using formulas and formatting	To use Micro: Bit software to create a rock, paper, scissors game
NC Objectives	• 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. • 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 responsibility; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• 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. • 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 responsibility; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• 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.
Substantive Knowledge	• Children will be able to recall previous knowledge of photography and access the camera app from the iPad • Children will learn how to edit and change digital images using a range of different editing tools • Children will learn how to combine layers to create one picture	• Children will learn how to access Google Sheets • Children will learn how to input data into a simple spreadsheet • Children will learn what a cell is and the importance of these when collecting data • Children will learn basic formulas and how to enter these into a spreadsheet	• Children will use directional commands to create a simple algorithm • Children will write increasingly more precise algorithms for use when programming • Children will simple selection in algorithms • Children will use logical reasoning to detect and correct errors in programs • Children will learn to decompose tasks (such as animations) into separate steps to create an algorithm.
Disciplinary Skills	• Understand how to upload an image to Google Drive • Understand how to crop an image using the crop tool • Understand how to experiment with different colour effects • Understand how to remove parts of an image using cloning/editing tools • Understand how to use the layering tool and why this is useful • Understand why images might be edited	• Understand how to open Google Sheets • Understand how to type text and numbers into cells • Understand how to select and format cells • Understand how to resize columns to fit data correctly • Understand how to add simple formulas like SUM & AVG • Understand how to copy and paste data into different cells	• Understand that Micro:bit uses blocks to create programs with a sequence of instructions • Understand how to build a simple program by sequencing movement blocks • Understand that loops allow repeated instructions • Understand how to use a loop to repeat instructions • Understand how to upload my algorithm onto a Micro:bit • Understand how to use conditional blocks (from previous years) • Understand how to make more interactive projects by combining loops, conditionals and variables
Vocabulary	manipulate, clone, recolour, layer, combine, digital image, resize, contrast, shape, focus, natural, lighting, landscape, portrait	log in, log out, mouse, pointer, cursor, username, password, taskbar pop up, track pad, keyboard, enter, backspace, copy, paste, screen, account, Google Document, Document, page, computer, laptop, graph, sum, spreadsheet, cells, format, columns, rows, formula, data, table	Broadcast block, Code blocks, Conditional, Coordinates, Decomposition, Features, Game, Information, Negative numbers, Orientation, Parameters, Position, Program, Project, Script, Sprite, Stage, Tinker, Variables, Algorithm, Code, Computational thinking, Decomposition, Input, Logical reasoning, Output, Pattern recognition, Script, Sequence, Variable

Assessment	Can the child edit a selected image using the tools provided and taught	Can the child use various formulas to collate data that has been collected	To create my own times rock, paper, scissors game

COMPUTING

UPPER JUNIORS - YEAR A

	AUTUMN 1	AUTUMN 2	SPRING 1
Description	Children will learn about podcasts and create and edit their own	Children will use Google Sheets and enter formulas/format data to analyse	Children will learn to code and debug on Crumble
NC Objectives	• Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, 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.	• 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 • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content	• 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
Substantive Knowledge	• Children will learn how to create a podcast • Children will learn how to edit their podcast by snipping • Children will create transitions in their podcast	• Children will learn how to create a Google Sheet that calculates the sum and total • Children will be able to format data that has been collected using conditional formatting	• Children will learn to create a moving product that meets the design specification • Children will be able to program the Crumble microchip to create a simple movement
Disciplinary Skills	• Understand how to add music and sound effects to their films • Understand how to add animated titles and transitions • Understand how to sequence clips of mixed media in a timeline and record a voiceover • Understand how to trim and cut film clips and add titles • Understand how to disable audio clips	• Understand how data is collected • Understand how to use simple formulae • Uunderstand how to edit and form different cells in a spreadsheet • Understand how to write a spreadsheet formula • Understand how data is collected • Understand how to write =SUM formula • Understand how to write =AVERAGE formula	• Understand how to use a range of sequences, selections and repetition commands combined with variables as required • Understand how to write generic codes • Understand how to critically evaluate their work and suggest improvements • Understand how to use conditions in repetition commands • Understand how to create programs that control physical systems
Vocabulary	Website, web page, browser, media, Hypertext Markup Language (HTML), layout, header, media, purpose, copyright, fair use, evaluate, preview, device, breadcrumb, trail, navigation, subpage, implication, embed	log in, log out, mouse, pointer, cursor, username, password, taskbar pop up, track pad, keyboard, enter, backspace, copy, paste, screen, account, Google Document, Document, page, computer, laptop, graph, sum, spreadsheet, cells, format, columns, rows, formula, data, table, publish, collate, average, filter, conditional format, validation	Input, process, output, flashing, USB, selection, condition, if… then… else, variable, random, navigation, design, task, step counter, plan, create, code, test, debug
Assessment	Children create their own podcast about the Ancient Greeks	Children create their own formula and formatting on Google Sheets	Can children program the Crumble microchip to create a simple movement

	SPRING 2	SUMMER 1	SUMMER 2
Description	Children will learn to code and debug on Crumble	Children will learn to generate a Google Form quiz to collect information	Children will learn to use Tinkercad to create 3D digital designs of WW2 bunkers
NC Objectives	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	• Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration • Select, use and combine a variety of software on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration • Select, use and combine a variety of software on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
Substantive Knowledge	• Children will learn to debug their algorithm • Children will learn to program the Crumble microchip to create a simple movement	• Children will learn how to access Google Forms • Children will learn how to create and publish a Google Form • Children will learn how to collect and analyse data	• Children will learn to manipulate multiple tools in Tinkercad to create a WW2 bunker 3D model
Disciplinary Skills	• Understand how to use a range of sequences, selections and repetition commands combined with variables as required • Understand how to write generic codes • Understand how to critically evaluate their work and suggest improvements • Understand how to use conditions in repetition commands • Understand how to create programs that control physical systems	• Understand how to collate my data that has been collected from a Google Form • Understand how to create a Google Form • Understand how to publish a Google Form • Understand how to analyse data that has been collected from the Google Form • Understand how to mark a quiz and give children the correct answer • Understand how to create a multiple-choice question	• Understand how to edit a picture to remove items, add backgrounds and merge photos • Understand how to use a 3D drawing app to create a realistic representation of a world object • Understand how to evaluate and discuss images, explaining effects and filters that have been used to enhance media • Understand how to access a template
Vocabulary	Input, process, output, flashing, USB, selection, condition, if… then… else, variable, random, navigation, design, task, step counter, plan, create, code, test, debug	log in, log out, mouse, pointer, cursor, username, password, taskbar pop up, track pad, keyboard, enter, backspace, copy, paste, screen, account, Google Document, Document, page, computer, laptop, graph, sum, spreadsheet, cells, format, columns, rows, formula, data, table, publish, collate, average, filter, conditional format, validation	3D Algorithm Binary image CAD Compression CPU Data Drag and drop Fetch, decode, execute ID card Input JPEG Memory Online community Operating system Output Pixels
Assessment	Can children program the Crumble microchip to create a simple movement	Can children create a self-marking Google Form quiz that can be answered by others	Can children use Tinkercad to create a realistic 3D model of a WW2 bunker

COMPUTING

UPPER JUNIORS - YEAR B

	AUTUMN 1	AUTUMN 2	SPRING 1
Description	Children will learn about vlogging and how to create their own video log	Children will use Google Sheets and understand how to use formulae to solve calculations	Children will learn to code and debug on Crumble
NC Objectives	• Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, 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.	• 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 • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content	• 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
Substantive Knowledge	• Children will learn how to create a video log • Children will learn why people create video logs • Children will learn how to import a video using iMovie • Children will learn how to edit a video using iMovie	• Children will learn how to create a Google Sheet that calculates the sum and total • Children will be able to format data that has been collected using conditional formatting	• Children will learn to create a moving product that meets the design specification • Children will be able to program the Crumble microchip to create a simple movement
Disciplinary Skills	• Understand how to record a high-quality video and upload this to a video editing app • Understand how to add audio effects to a video using the fade-in/out feature • Understand how to add subtitles to a video clip • Understand how to crop clips • Understand how to outline scenes in my video • Understand how to import/export my edited video	• Understand how data is collected • Understand how to use simple formulae • Understand how to edit and form different cells in a spreadsheet • Understand how to write a spreadsheet formula • Understand how data is collected	• Understand how to use a range of sequences, selections and repetition commands combined with variables as required • Understand how to write generic codes • Understand how to critically evaluate their work and suggest improvements • Understand how to use conditions in repetition commands • Understand how to create programs that control physical systems
Vocabulary	split screen, montage, fade, cutaway, trim, cut, transition, trailer, close up, actopm shot, timeline, media, library, import, overlay, playback	log in, log out, mouse, pointer, cursor, username, password, taskbar pop up, track pad, keyboard, enter, backspace, copy, paste, screen, account, Google Document, Document, page, computer, laptop, graph, sum, spreadsheet, cells, format, columns, rows, formula, data, table, publish, collate, average, filter, conditional format, validation	Input, process, output, flashing, USB, selection, condition, if… then… else, variable, random, navigation, design, task, step counter, plan, create, code, test, debug
Assessment	Children create their own video log using the taught skills	Children will collect their data from Google Forms and export this to a Google Sheet	Can children program the Crumble microchip to create a simple movement

	SPRING 2	SUMMER 1	SUMMER 2
Description	Children will learn to code and debug on Crumble	Children will learn to code and debug on Crumble	Children will learn to use Tinkercad to create 3D digital designs of WW2 bunkers
NC Objectives	• 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	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	• Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration • Select, use and combine a variety of software on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
Substantive Knowledge	• Children will learn to debug their algorithm • Children will learn to program the Crumble microchip to create a simple movement	• Children will learn to debug their algorithm • Children will learn to program the Crumble microchip to create a simple movement	• Children will learn to manipulate multiple tools in Tinkercad to create a WW2 bunker 3D model
Disciplinary Skills	• Understand how to use a range of sequences, selections and repetition commands combined with variables as required • Understand how to write generic codes • Understand how to critically evaluate their work and suggest improvements • Understand how to use conditions in repetition commands • Understand how to create programs that control physical systems	• Understand how to use a range of sequences, selections and repetition commands combined with variables as required • Understand how to write generic code across multiple projects • Understand how critically evaluate their work and suggest improvements • Understand how to use conditions in repetition commands • Understand how to create programs that control physical systems	• Understand how to edit a picture to remove items, add backgrounds and merge photos • Understand how to use a 3D drawing app to create a realistic representation of a world object • Understand how to evaluate and discuss images, explaining effects and filters that have been used to enhance media • Understand how to access a template
Vocabulary	Input, process, output, flashing, USB, selection, condition, if… then… else, variable, random, navigation, design, task, step counter, plan, create, code, test, debug	Input, process, output, flashing, USB, selection, condition, if… then… else, variable, random, navigation, design, task, step counter, plan, create, code, test, debug	3D Algorithm Binary image CAD Compression CPU Data Drag and drop Fetch, decode, execute ID card Input JPEG Memory Online community Operating system Output Pixels
Assessment	Can children program the Crumble microchip to create a simple movement	Can children program the Crumble microchip to create a simple movement	Can children use Tinkercad to create a realistic 3D model of a WW2 bunker