Curriculum Overview for Computing

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	Technology all around	Electronic Devices	Using the internet	Digital Photography	Make a picture	Making Music
Reception	Using the internet/Google Earth	IPADs and Keyboard	Technological Devices	Using Technology	Technology then and now	Digital painting
Year 1	Technology Around Us	Digital Painting	Digital Writing	Grouping Data	Moving a Robot	Programming Aminations
Year 2	Information Technology Around Us	Digital Photography	Making Music	Robot Algorithms	Pictograms	Introduction to Quizzes
Year 3	Basic Digital Writing skills recap Connecting Computers	Sequence in Music	Stop-frame Animation	Branching Databases	Desktop Publishing	Events and Actions
Year 4	The Internet	Audio Editing	Repetition in Shapes	Data-logging	Photo Editing	Repetition in Games
Year 5	Computer Systems	Video Editing	Flat-file Databases	Physical Computing – Coding 1	Vector Drawing	Physical Computing – Coding 2
Year 6	Communication	Web-page Creation	Variables in Games	Introduction to Spreadsheets	3D Modelling	Sensing

Early Years

Educational Programme	ICT does not appear within the Early Years Curriculum as a discrete area of development. At The Lea, we make sure that opportunities for ICT learning are included within other areas. These include talking about the lives of the people around them and their roles in society, e.g., delivery and shop staff, hairdressers, the police, the fire service, nurses, doctors and teachers, and inviting different people to visit from a range of occupations, such as a plumber, a farmer, a vet or an author. How does ICT help them in their job? The introduction of "cause and effect" toys supports children to understand how basic technology works and can be used within their everyday lives. Time is given to exploring equipment and teaching the pupils to use it accurately and carefully, and in a range of contexts. Throughout the Early Years, a range of technologies can be introduced in this way: cameras, remote controlled and programmable toys, metal detectors, digital magnifiers, MP3 recorders, video cameras and tablets/computers with appropriate software.

Characteristics of Effective Learning

Playing and Exploring	Active Learning	Creating and Thinking Critically
Opportunities to use ICT in different contexts. This can be included through the role play area, e.g., shop – cash register, scales; home – washing machine, microwave, vacuum cleaner; offices – computer, calculator, telephone; garage/workshop – power tools, calculator, measuring tape.	Children concentrate and keep on trying if they encounter difficulties, and enjoy achievements. Opportunities to use ICT in different contexts.	Choosing appropriate equipment to enhance their own learning experiences. Considering "What if..?" questions in relation to their experience and trying something new in response, e.g., programming a robot.

Early Years – Nursery Overview

Nursery (Non-statutory Development Matters/ Croner-i resources)	Knowledge and Skills					
	Personal, Social and Emotional Development Managing self Be confident to try new activities and show independence, resilience and perseverance in the face of challenge – learning how to use equipment through active play and teacher direction.	**Physical Development** Moving and handling Pushing buttons, twisting, pressing and holding, tapping – using switches or movement on devices.	**Understanding the World** Provide equipment to support curiosity about the natural world and investigations - tablet with a magnifying app. Encourage children to refer to books, wall displays and online resources. Attention is drawn to the technology that is being used in the world around them, from mobile phones to pedestrian crossings. Practitioners provide a positive role model by showing children that adults use technology for their own purposes.	**Communication and Language** Apps on tablets enable children to mix marks, photos and video to express meanings and tell their own stories. Learning new vocabulary, including looking at photographs. Children use cameras to take own photographs e.g. photographs of objects beginning with focus sound.	**Expressive Arts and Design** Children are offered a wide range of different instruments, from a range of cultures. This might also include electronic keyboards and musical apps on tablets. Encourage children to experiment with different ways of playing instruments. Listen carefully to their music making and value it. Suggestion: record children's pieces, play the pieces back to the children and include them in your repertoire of music played in the setting.	**Mathematics** Understand position through words alone – for example, "The bag is under the table," – with no pointing. Use spatial words in play, including 'in', 'on', 'under', 'up', 'down', 'besides' and 'between'. Suggestion e.g., program to build pictures on the IWB: "Let's put the troll under the bridge and the billy goat beside the stream."

Reception	Knowledge and Skills				
(Non-statutory Development Matters/ Croner-i resources)	**Personal, Social and Emotional Development**	**Physical Development**	**Understanding the World**	**Communication and Language**	**Expressive Arts and Design**
	Making relationships	Moving and handling	Use images, video clips, shared texts and other resources to bring the wider world into the classroom. Listen to what children say about what they see.	Listening and attention	Expressive arts and design – creating with materials – opportunities to use ICT Paint packages to create pictures.
	Children working together to programme a robot	Fine motor skills develop to use control pads and keyboards		Listening to instructions on how the resource works	
	Using simple ICT programmes or resources to communicate with each other, e.g., walkie-talkies	using Letter Join on ipads – link to Literacy – letter formation		Understanding	
	Self-confidence and self-awareness	Health and self-care	Know some similarities and differences between things in the past and now, drawing on their experiences and what has been read in class	Being able to follow instructions	
	Increased self-confidence as their ICT skills develop	Children learn the balance between playing a computer toy and being sedentary, and spending time being physical outdoors		Speaking	
	Provide ICT resources that allow the child to make choice			Explaining the sequence a robot has performed	
	Managing feelings and behaviour		Comment on images of familiar situations in the past	Provide appropriate non-fiction books and links to information online to help them follow their interests.	
	Support if children become frustrated when the technology does not respond how they want it to		Look at aerial views of the school setting, encouraging children to comment on what they notice, recognising buildings, open space, roads and other simple features. – Google Earth		
	Use cameras with the children to capture feelings				
	Internet Safety				
Vocabulary/ Example Questions	What happens when you press…? How do you view…? How does the torch work? What do you think will happen if..? Maybe we could… During the Early Years, children may be exposed to ICT vocabulary through direct teaching or exploration of their own interests, e.g., keyboard, keys, letters, mouse, numbers, barcode, scan, image, internet, paintbrush, tools, switch, button, photograph.				

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1 **NC and additional skills and knowledge**	**Technology Around Us** Use technology purposefully to create, organise, store, manipulate and retrieve digital content Recognise common uses of information technology beyond school	**Digital Painting** Use technology purposefully to create, organise, store, manipulate and retrieve digital content	**Digital Writing** 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	**Grouping Data** 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	**Moving a Robot** Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions	**Programming Aminations** Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions

	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.		for help and support when they have concerns about content or contact on the internet or other online technologies	for help and support when they have concerns about content or contact on the internet or other online technologies.	Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs. Recognise common uses of information technology beyond school	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
Destination questions	*Recap: In Reception, you looked at how our everyday things have changed. Do you remember the old typewriter and the telephone? Do we use them now?* What are some different examples of technology? How can we use technology in different ways? What are the main parts of a computer? How can we use technology safely? What are the main parts of a computer? *Next Steps: In Year 2, you will learn other ways that we use computers to help us.*	*Recap: In Reception, you used laptops and iPads to make pictures. How did you make the pictures?* How can you paint/draw on a computer? What programs can you use? Which different tools can you use to draw on a painting/ drawing program, app or website? How do you change between them? How do you change line size, line colour, brush size and brush colour? What is the fill tool used for? Can you use it to change colours? *Next Steps: In Year 2, you will learn more about using computers for art with photographs.*	*Recap: In Reception, you used laptops and iPads. Is a keyboard the same on a laptop as it is on an iPad?* How do we write on a computer? What do the space bar, caps lock, shift, backspace, delete and enter keys do when typing? Where are they located on a keyboard? How do you select text on the computer? How can you change the font, size and text colour? How can you make the text bold, italic or underlined? *Next Steps: We will keep practising these skills. In Year 3, you will learn about another program that you can use to present your work.*	*Recap: Can you remember sorting different shapes/objects in Nursery and Reception?* What is an 'object'? How can I group and count objects? How many ways can I describe an object? What labels can I use for my object? How can I compare objects? How can grouping make it easier for me to ask questions? *Next Steps: In Year 2, you will learn more about collecting and using data to make pictograms.*	*Recap: In Reception, you used the IWB, laptops and iPads to move objects around the screen. How else can we make things move?* What is a robot? How do I make the robot move? How can I change the direction the robot moves in? Can I predict the robot's movement from a code? Can I design a code for the robot? (What is an algorithm?) Can I plan two different routes to the same place? *Next Steps: In Year 2, you will use Bee-bots again to write movement codes.*	*Recap: Have you ever played a computer game?* What is a sprite? How can commands be joined together (in Scratch)? What are blocks used for? How can we change a sprite? How do sprites move? How can I test my code? *Next Steps: In Year 2, you will learn how to make a quiz using code.*
Vocabulary **Bold - new vocabulary**	**click**, computer, double-keyboard, **keyboard**, **keys**, letters, numbers,	artists: Wassily Kandinsky, Henri	**backspace, bold,** capital letters, compare, **cursor, font**	colour, **compare, data set,** fewest, group, image, **label**, least,	**algorithm,** backwards, **clear commands, directions**, forwards, go,	algorithm, appropriate, background, Bee-Bot, **block**, change,

	mouse, screen, technology, trackpad, typing.	Matisse, Piet Mondrian, Georges Seurat; **brush size, brush style**, colour, computers, dislike, **erase**, feelings, fill, **fill tool**, like, **line tool,** painting, paintbrush, **paint program**, pictures, pointillism, prefer, primary colours, **shape tool, tools**, undo.	**format, italic,** keyboard, keys, letters, mouse, numbers, **redo,** select, space, text, type, typing, toolbar **underline** undo, font, **word processor,** writing	less, more, most, **object, property,** search, shape, size, the same, **value.**	**instructions**, left, plan, **program**, right, **route,** turn, **Bee-Bot.**	command, compare, design, delete, effect, instructions, joining, predict, program, **programming, programming area, programming blocks,** reset, **Scratch Jr, sprite, start run,** value.
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Year 2 **NC and additional skills and knowledge**	**Information Technology Around Us** 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.	**Digital Photography** use technology purposefully to create, organise, store, manipulate and retrieve digital content recognise common uses of information technology beyond school	**Making Music** use technology purposefully to create, organise, store, manipulate and retrieve digital content	**Robot Algorithms** 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	**Pictograms** 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.	**Introduction to Quizzes** 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 recognise common uses of information technology beyond school use logical reasoning to predict the behaviour of simple programs
Destination questions	*Recap: In Year 1, you learned about the different parts of a computer. What are the main parts of a computer?*	*Recap: In Year 1, you learned about how we can use computers to make pictures. What other types of pictures can we use computers for?*	*New Learning: What do you use to listen to music?* *How does music make us feel?*	*Recap: In Year 1, you learned how to program the Bee-bots to move. You needed instructions – what other word do we use*	*Recap: In Year 1, you learned about how we can group objects to make them easier to sort. Can you remember what 'data' means?*	*Recap: In Year 1, you used Scratch to move a sprite on the screen. What is a sprite?* How does ScratchJr work?

	What is IT? How do we use IT in school? How do we use IT in the world? What are the benefits of IT? How can we use IT safely? How many ways can IT be used? *Next Steps: In Year 3, you will learn more about how computers are connected.*	What devices can take photographs? Landscape or portrait? What makes a good photograph? How does lighting change a photograph? How can I change the colour of my photograph? Is it real? *Next Steps: In Year 3, you will learn how to make movies with photographs.*	What is a rhythm pattern? How can computers be used to make music? Can we use a computer to make a musical pattern? Can I compose a piece of digital music? How can we improve our music on the computer? *Next Steps: In Year 3, you will learn how to create music using instructions in Scratch.*	*to describe these? [algorithm]* What are good instructions? Why do instructions have to be in order? What is code tracing? Why do computer games include artwork? Why is it important to design and try out our algorithms? Why do we need to debug our code? *Next Steps: In Year 3, you will learn how to create music using instructions in Scratch.*	What is a tally chart? How can data be presented on a computer? How can we make a pictogram on a computer? What is an attribute? How do we collect, present and share data? Why should some information not be shared? *Next Steps: In Year 3, you will learn more about using databases to ask questions.*	What is an 'outcome'? What do the blocks do? How can we use Scratch to design a quiz? What will your quiz question be? How do you think you could improve your project? *Next Steps: In Year 3, you will design a game with a maze in it.*
Vocabulary **Bold - new vocabulary**	**barcode,** benefit, computer, **Information technology (IT), digital**, **scanner/scan**	background, camera, **capture,** compose, device, **digital, editing, filter,** flash, **focus,** format, **framing,** image, landscape, lighting, **light sources,** photograph, portrait, subject.	beat/pulse, compose, create, **digital,** edit, emotion, instrument, loud, music, notes, open, pattern, pitch, pulse, quiet, rhythm, tempo. Vivaldi: emotion, feelings, Mars, Neptune, peace, planets, Venus, war.	algorithm, **artwork,** Bee-Bot, **bug, clear,** debugging, **decomposition**, design, instruction, **mat, order,** prediction, program, **route, sequence, unambiguous.**	**attribute**, **block diagram**, common, conclusion, count, data, different, enter, explain, group, image, label, object, organise, **pictogram**, property, search, shape, sharing, size, **tally chart**, total, value, votes. Comparison: compare, fewest, least, least common, least popular, less, less than, more, more than, most, more common, most common, most popular, the same.	**actions,** algorithm, blocks, **build,** change, command, compare, **debug,** design, delete, **features**, instructions, **match, modify, outcome,** predict, program, programming, programming area, programming blocks, **project, quiz,** reset, **run,** ScratchJr, **sequence,** sprite, start run, value.
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Year 3 **National Curriculum and additional**	**Connecting Computers** use sequence, selection, and repetition in programs; work with variables and various	**Sequence in Music** design, write and debug programs that accomplish specific goals, including controlling or	**Stop-frame Animation** select, use and combine a variety of software (including	**Branching Databases** select, use and combine a variety of software (including internet services) on a	**Desktop Publishing** use search technologies effectively, appreciate how results are selected and ranked, and be	**Events and Actions** design, write and debug programs that accomplish specific goals, including

skills and knowledge	forms of input and output understate computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	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 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.	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 .	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.	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.	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 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.
Destination questions	*Recap: In Year 2, you learned how we use computers to help us. Tell me how we use them.* *Year 1 Skills to revisit:* *How do we write on a computer using both hands?* *What do the space bar, caps lock, shift,*	*Recap: In Year 2, you created digital music. What did you have to think about when you were improving your musical pieces?* What can sprites 'do'? How do sprites move? How many ways can we start a program?	*Recap: In Year 2, what did you have to do to make sure you captured a 'good' photograph?* Can a picture move? What does 'frame-by-frame' mean? What's the story?	*Recap: In Year 2, you learned about how we can create tally charts and pictograms. Can you remember what 'attribute' means?* What is a question? How can I use questions to sort information?	*Recap: In Year 1, you learned how to use Word to write on a computer. What tools can you use in Word to change how your work looks?* How do we use text and images to communicate? What is desktop publishing?	*Recap: In Year 2, you learned how to make a quiz using code in Scratch. Can you remember what a 'block' is?* What controls can be used to move a sprite in Scratch?

	Autumn 1 (cont.)	Autumn 2 (cont.)	Spring 1 (cont.)	Spring 2 (cont.)	Summer 1 (cont.)	Summer 2 (cont.)
	backspace, delete and enter keys do when typing and where are they located on a keyboard? *How can you change the font, size and text colour, and make the text bold, italic or underlined?* How does a digital device work? What parts make up a digital device? How am I connected? How are computers connected? ***Next Steps:*** *In Year 4, you will learn more about how the Internet is connected.*	What does a sequence of commands look like? Can you build a sequence of commands? ***Next Steps:*** *In Year 4, you will use computers to make your own podcasts.*	What is 'onion-skinning' in stop-frame animation? How can we improve an animation? How can we add other media into our animation? ***Next Steps:*** *In Year 4, you will explore editing and changing digital images.*	How can we create a branching database? What does a good branching database need? (Lesson 4 & 5) What is the same, what is different? (database v. pictogram) ***Next Steps:*** *In Year 4, you will use data-loggers to collect information using sensors.*	What is a template? How can we add content? Why is layout so important? Why choose desktop publishing? ***Next Steps:*** *We will keep practising these skills. In Year 6, you will learn more about presentation in layout when you create your own web pages.*	How can I program a sprite to move? How does adding extension blocks change my program? How can I change the way a line is drawn? Why do we need to debug? Can I create a program based on my design? ***Next Steps:*** *In Year 4, you will use Scratch to design a computer game.*
Vocabulary **Bold - new vocabulary**	connection, digital, **digital device**, **input, network, network cables, network sockets, network switch,** non-digital, output, process, program, **server, wireless access point**	**animation,** character, consistency, delete, evaluation, events, **flip book,** frame, image, **import,** media, **onion skinning,** photograph, setting, sequence, **stop-frame animation, stop-frame, transition.**	algorithm, **backdrop,** bug, **chord, code,** commands, **costume,** debug, design, **event, motion**, note, order, programming blocks, ***turn, point in direction, go to, glide,*** run the code, Scratch, sequence, sprite, **stage, task.**	attribute, **branching database**, compare, database, equal, even, **value, j2data,** objects, order, organise, questions, selecting, separate, **structure,** table, value.	advantages, benefits, communicate, content, **copy**, **desktop publishing,** disadvantages, font, images, landscape, **layout, orientation, paste, placeholder,** portrait, purpose, style, **template**, text.	action, algorithm, **code debugging,** design, **errors, event, extension block, logic motion, move, pen, pen up resize, set up, setup,** sprite, **test,**

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 4 **National Curriculum and additional skills and knowledge**	**The Internet** understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer	**Audio Editing** use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	**Repetition in Shapes** design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve	**Data-logging** use sequence, selection, and repetition in programs; work with variables and various forms of input and output	**Photo Editing** use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	**Repetition in Games** design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve

	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.	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.	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 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.	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	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.	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 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.
Destination questions	*Recap: In Year 3, you learned about how digital devices are connected. How do you use your computer/tablet at home?* What is the internet 'made up of'? How is information shared over the internet? Why does a network need protection?	*Recap: In Year 3, you used Scratch to create a sequence of music. Was it important to plan your ideas out? Why?* Who owns the recording? What is copyright? What should be included in a podcast? Why is it important to be able to save a recording?	*Recap: In Year 1, you used a paint program to create pictures. What did you use to make shapes?* How important is accuracy in programming? *What is a snippet of code?* What is a text-based language?	*Recap: In Year 3, you used a branching database to ask questions. What is a branching database?* How is data used to answer questions? What are sensors? What are 'data points'? How can data be viewed in different ways?	*Recap: In PSHE, we learned that some images we see online have been changed. In Year 2 and 3, you learned about how we can take photographs using digital devices.* What effect can editing have on an image?	*Recap: Last term, we learned about repetition using Logo to draw shapes. What is a snippet of code?* What is the difference between count-controlled loops and infinite loops? How can different loops run at the same time?

	How can you access websites on the WWW? Who owns the web? How can I know what to believe on a website? ***Next Steps:*** *In Year 5, you will explore how computer systems help us in our everyday lives.*	Why is it important to be able to edit a podcast? How do you edit a recording? Why is it important to export a podcast? What would improve the quality of this recording? ***Next Steps:*** *In Year 5, you will work on digital and audio editing to create your own short video.*	What does repetition mean? How can we draw different shapes using the computer? How can we break (decompose) a task down to help with design? How can we use count-controlled loops in our design? ***Next Steps:*** *In Year 5, you will explore another program to create shapes and pictures using vector drawing.*	What data can you collect on a data logger? How do we interpret data from a data logger? ***Next Steps:*** *In Year 5, you will learn about flat file databases.*	Why might someone want to change the composition of a picture? Which tools are appropriate for retouching images? What is the positive effects of editing an image? What are the negative effects of editing an image? How can you tell if an image has been edited? ***Next Steps:*** *In Year 5, you will work on digital and audio editing to create your own short video.*	Can you modify codes to change a program? Why is planning a program important? How can we use repetition in a game? ***Next Steps:*** *In Year 5, you will create a code to repeat a sequence of physical events using Crumble kits.*
Vocabulary **Bold - new vocabulary**	accurate, adverts, content, download, files, honest, information, **internet, links, network, network security, network switch, ownership,** permission, **router,** routing, **server**, sharing, use, **web address, web browser web page,** website, **wireless access point (WAP), World Wide Web (www).**	**align, audio,** device, edit, editing, evaluate, **export, feedback** headphones, **import, input device,** layer, load, **microphone, MP3, output,** playback, **podcast,** record, save, selection, sound, speaker, **trim.**	algorithm, code **snippet,** commands, **count-controlled loop,** debug, **decompose,** design, **Logo,** pattern, **procedure,** program, **repeat, repetition, trace, turtle,** value.	**analyse,** collection review, conclusion data, **data logger, data point, data set,** export, import, **input device, interval, logged, logging, sensor,** table (layout).	adjust, **adjustments,** alter, arrange, background, border, brighten, **clone,** colours, **composite,** composition, copy, **copyright,** crop, cut, digital, edit, **effects,** elements, fake, flip, font style, foreground, hue/ saturation, illustrator, image, **layer, magic wand,** original, paste, **pixels,** publication, real, **retouch,** recolour, rotate, save, search, select, **sepia,** sharpen, shapes, undo, version, **vignette.**	algorithm, **animate,** blocks, code, costume, **count-controlled loop,** design debug, **duplicate,** evaluate, event, **forever, infinite loop, loop,** modify, programming, **refine, repeat, repetition,** Scratch, sprite, value
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Year 5 **National Curriculum and additional**	**Computer Systems** understand computer networks including the internet; how they can provide multiple	**Video Editing** select, use and combine a variety of software (including internet services) on a range of	**Flat-file Databases** select, use and combine a variety of software (including internet services) to	**Physical Computing – Coding 1** design, write and debug programs that accomplish specific	**Vector Drawing** select, use and combine a variety of software (including internet services) on a range of	**Physical Computing – Coding 2** design, write and debug programs that accomplish specific

skills and knowledge	services, such as the world wide web; and the opportunities they offer for communication and collaboration use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	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. use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	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 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	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.	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
Destination questions	*Recap: In Year 4, you learned about how the Internet is a network of networks, and the World Wide Web. What is a network?* What is a system? How is information shared? What is an algorithm? How does information get to the right place?	*Recap: In Year 4, you recorded and exported your own podcasts. What does 'importing' and 'exporting' mean?* What is a video? What digital devices record video? How can I capture video using this device?	*Recap: In Year 4, you used data-loggers to record data. What is a data-logger? How does it work?* What is a database? What is a 'field' and a 'record'? Why do we use databases? What can help us to search in a database?	*Recap: In Year 4, you designed a game using repetition. What is the difference between count-controlled loops and infinite loops?* What is a microcontroller? How can we program output devices? What is a 'condition' in programming?	*Recap: In Year 4, you wrote code to draw shapes. What are 3 key pieces of advice you can give me about using computers to draw?* Can you make a picture just using shape? What is a vector drawing? How do you create a vector drawing?	*Recap: This term, we looked at conditions when writing programs. What is a 'condition' in programming?* How are conditions and selections used in games? Can we have more than one outcome from selection?

	How do computer systems help us in real-life? How can we collaborate with each other online? ***Next Steps:*** *In Year 6, you will explore how we communicate on the web and the importance of communicating responsibly.*	What are the features of an effective video? How can we edit video? ***Next Steps:*** *In Year 6, you will learn more about how we communicate digitally by creating your own web pages.*	Why do we use charts? How do we use databases in real-life? ***Next Steps:*** *In Year 6, you are going to learn about spreadsheets, which is another way to create and manipulate a database.*	How do we use selection? What can my model do? (link to DT project) ***Next Steps:*** *In Year 6, you will use micro-controllers again to create programs including sensors.*	What is layering? How can we change our vector drawings? ***Next Steps:*** *In Year 6, you will design pictures using 3-D modelling.*	What is program 'flow'? How can we design a quiz using Scratch? Who is the Quizmaster? (Design & debugging task). ***Next Steps:*** *In Year 6, you will design a game that uses variables.*
Vocabulary **Bold - new vocabulary**	system, connection, digital, input, process, output, sensor, algorithm, protocol, address, packet, Google Slides, online collaboration, explore, chat.	video, audio, recording, storyboard, script, soundtrack, dialogue, capture, zoom, storage, digital, tape, AV, recording, save, videographer, techniques: zoom, pan, tilt, angle, lighting, setting, YouTuber, content, light, camera angle, colour, export, split, trim, edit, titles, end credits, timeline, transitions, soundtrack, retake/ reshoot, special effects.	database, data, information, record, field, sort, order, group, search, value, criteria, AND, OR, graph, chart, axis, compare, filter	**microcontroller, Crumble controller, components, LED, 'sparkle', crocodile clips, connect, battery box,** program, repetition, infinite loop, output devices, **motor,** count-controlled loop, **switch, condition, true, false,** input, **selection,** action, sensor, algorithm, debug.	vector, drawing tools, shapes, object, icons, toolbar, Google Drawings, vector drawing, object, move, resize, colour, rotate, duplicate/copy, organise, zoom, select, alignment grid, handles, consistency, modify, layers, front, back, order, paste, group, ungroup, reuse.	**selection, condition, true, false**, count-controlled loop, Scratch, outcomes, **conditional statement (the linking together of a condition and outcomes),** algorithm, program, debug, question, answer.
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Year 6 **National Curriculum and additional skills and knowledge**	**Communication** design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts understand computer networks including the internet; how they can	**Web-page Creation** 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	**Variables in Games** 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	**Introduction to Spreadsheets** 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,	**3D Modelling** 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	**Sensing** 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

	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.	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. use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	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 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.	evaluating and presenting data and information.	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.	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 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.
Destination questions	*Recap: In Year 5, you learned about systems, and that we use computer systems in our everyday lives. What is a system?* How can we search the web? What is a 'web crawler'? How are search results ranked?	*Recap: In Year 4, you recorded your own podcasts and, in Year 5, you created your own short video to share information. How else can you communicate information?* What makes a good website?	*Recap: In Year 3 and Year 5, you learned about conditions. What is a 'condition' in programming?* What is a variable? Why are variables used in programs?	*Recap: In Year 5, you learned about flat file databases. What is a flat-file database?* What is a spreadsheet? What is a data set? What is a formula? How can data be calculated?	*Recap: In Year 5, you explored creating pictures using vector drawing.* What is 3D modelling? How can you resize 3D objects? How do you rotate £D objects? How can you use 3D objects to change the	*Recap: In Year 3 and 4, you learned about sequence and repetition. In Year 5, you learned about selection and last term we learned about variables. What is a variable?* How does selection control flow?

	How are searches influenced? How do we communicate? Why should we act responsibly when communicating online? ***Next Steps:*** *At secondary school, you will continue to learn about the Internet, and how to collaborate with others online.*	How would you lay out your web page? Copyright or copy WRONG? How does the page look? What is a navigation path? Why should we think before we hyperlink? ***Next Steps:*** *At secondary school, you will continue to learn about web design and HTML.*	What happens if I change a variable in a game? Why are the benefits of designing an algorithm before programming? Why is important to name variables? ***Next Steps:*** *At secondary school, you will continue to learn about programming and coding.*	How can spreadsheets be used to help plan an event? What is the best way to present data from a spreadsheet? ***Next Steps:*** *At secondary school, you will continue to learn about spreadsheets and modelling databases.*	appearance of other 3D objects? How can we group and modify 3D objects? Does the plan fit the model? ***Next Steps:*** *At secondary school, you will continue to learn about using computers to design and manipulate images.*	How can we use a conditional statement to change a variable? Why is the order of conditions in **else, if** statements important? Can I design a project that uses inputs and outputs on a controllable device? ***Next Steps:*** *At secondary school, you will learn more about coding and project management.*
Vocabulary **Bold - new vocabulary**	BBC Newsround, **blog, bot, crawler,** communication, content **creator**, email, **engine,** refine**,** index, internet, **links, one-to-many, one-to-one, one-way, optimisation,** private, public, **ranking**, search, searching, **search engine**: Bing, DuckDuckGo, Google, Swisscows, Yahoo!; selection, SMS, Twitter, two-way, WhatsApp, web crawlers, YouTube.	**breadcrumb trail,** browser**, copyright,** device, **embed** evaluate, external, fair use, **Google Sites,** header, **home page, hyperlink, Hypertext Markup Language (HTML),** implication, layout, link, logo, media, **navigation,** preview, purpose, **subpage,** website, **web page.**	algorithm, artwork, change, code, debug, design, evaluate, event, improve, name, program, project, set, share, task, test, value, **variable.**	application, attribute, calculate, **cells, cell, chart, columns and rows, common, comparison,** data, data heading, data item, data set, duplicate, evaluate, format, **formula,** graph, input, object, **operation,** organised, output, propose, question, **range,** reference, results, **sigma,** software, spreadsheet, tools.	colour, design, **dimensions, duplicate,** evaluate, group, hole, improve, lift, modify, placeholder, position, resize, rotate, space, **2D, 3D, 3D object, 3D select, ungroup,** view.	*accelerometer***,** algorithm, code, *compass,* condition, create, debug, design, direction, **flashing, if then else**, input, **Crumble Kit,** *Micro:bit, MakeCode,* **navigation,** output, **process, random,** selection, sensing, *step counter plan,* task, test, **USB, variable.** *Vocabulary in italics indicates where the hardware/task may need to be **different** from that in the plan.*