MILLBROOK PRIMARY SCHOOL COMPUTING 2023/24

By the end of their time at Millbrook Community Primary School our Year 6 children will: • use computational thinking and creativity to understand and change the world; • think and work creatively, analytically and solve problems; • be digitally literate; • use a variety of software and hardware; • understand how to use technology safely and appropriately.

Early Years Foundations Stage Framework and National Curriculum Coverage						
EYFS	Key Stage 1	KeyS	Stage 2			
Reception	Year 1 and Year 2	Year 3 and Year 4	Year 5 and Year 6			
First and foremost, it is important to recognise that there will be no statutory requirement to use and learn about technology in the EYFS. Since the new Early Years Foundation Stage curriculum commenced in September 2021, the 'Technology' strand has been removed from 'Understanding the World' and has not been replaced with any updated guidance. At Millbrook we believe computing and technology are still vitally important subjects to deliver to Reception children. Not only will teaching a well-planned Computing curriculum ensure that children enter Year 1 with a strong foundation of knowledge, but Computing lessons in the EYFS also ensure that children develop listening skills, problem-solving abilities and thoughtful questioning — as well as improving subject skills across the seven areas of learning. We live in a technological world and there is no escape from the reality that technology is integrated into the lives of young children. Technology is now, and, in all likelihood, will always be in some form or other, a significant part of children's lives. Just as we ensure the children in our care are ready for the adult world by teaching them maths and literacy, we should also make sure that they are fluent in computer literacy and all-important e-safety. Life is very digital. In reception much of what happens is about helping children to develop their understanding of the world around them and their place within it. At Millbrook we spend time with children exploring relationships, emotion, behaviour and culture in a bid to help them relate to others and understand what happens around them. We feel it is important to help them to understand how technology is used both in school and in their wider lives. It is important that we still talk about the technology we are using with children, answer their questions about technology and continue to include technology within role play areas.	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. Create and debug simple programs use logical reasoning to predict the behaviour of simple programs. Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Recognise common uses of information technology beyond school. Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	Design, write and debug pr specific goals, including cor physical systems; solve pro into smaller parts. Use sequence, selection, ar work with variables and var output. Use logical reasoning to exp algorithms work and to det algorithms and programs. Understand computer netw how they can provide mult world wide web; and the op communication and collabo Use search technologies eff results are selected and rar evaluating digital content. Select, use and combine a v internet services) on a rang and create a range of progr that accomplish given goals analysing, evaluating and p information. Use technology safely, resp recognise acceptable/unact a range of ways to report co contact.	ograms that accomplish introlling or simulating blems by decomposing them and repetition in programs; rious forms of input and clain how some simple ect and correct errors in vorks including the internet; iple services, such as the pportunities they offer for coration. fectively, appreciate how inked, and be discerning in variety of software (including ge of digital devices to design rams, systems and content s, including collecting, resenting data and pectfully and responsibly; ceptable behaviour; identify oncerns about content and			

Our school has adapted the Department for Education's 'Teach Computing Curriculum for KS1 and KS2' (<u>https://teachcomputing.org/</u>) to reflect our mixed age class structure and need for a two-year rolling computing curriculum. KS1 and KS2 teacher's use the 'Teach Computing' lesson plans to inform their computing planning and meet the needs of the pupils in their class. Lessons have clear learning objectives and key vocabulary is identified. Every lesson includes formative assessment. Summative assessment opportunities are built in across the year. EYFS follow Knowsley Computing Scheme. The Knowsley Computing Scheme is a curriculum that meets the needs and interests of all learners. It contains a range of fun, exciting and creative activities, all based on the essential requirements of the computing program of study. EYFS, KS1 and KS2 have two afternoon sessions per year with a Learning Technologies Officer which cover the three areas of Computing: Computer Science, Information Technology and Digital Literacy.

The Teach Computing Curriculum is a progressive learning curriculum with a recommended, but not prescriptive, teaching order that is structured in units. For these units to be coherent, the lessons within a unit must be taught in order. However, across a year group, the units themselves do not need to be taught in order, with the exception of 'Programming' units, where concepts and skills rely on prior learning and experiences. Every unit of work in the Teach Computing Curriculum contains: a unit overview; a learning graph, to show the progression of skills and concepts in a unit; lesson content — including a detailed lesson plan, slides for learners, and all the resources you will need; and formative and summative assessment opportunities. The units for key stages 1 and 2 are based on a spiral curriculum. This means that each of the themes is revisited regularly (at least once in each year group), and pupils revisit each theme through a new unit that consolidates and builds on prior learning within that theme. This style of curriculum design reduces the amount of knowledge lost through forgetting, as topics are revisited yearly. It also ensures that connections are made even if different teachers are teaching the units within a theme in consecutive years.

The general approach to implementing the computing curriculum content for mixed year groups is to teach units for the lower year group in the first three teaching blocks, and units for the higher year group in the last teaching blocks. There are some dependencies between units and where there is a possibility of these units not being taught in order, they have been noted and mitigations have been devised within medium term plans. A benefit of this approach is that both Computing Systems and Networks unit will be taught in one cycle, and both Data and Information units will be taught in the other. 50% of the time, there are dependencies between units in consecutive years of these strands. By teaching both units of each strand in a single cycle, it removes the possibility of some children being taught those units in the incorrect order. The compromise is that each strand will only be taught every other cycle.

Overview of Dependencies within the 'Teach Computing Curriculum' and our Curriculum Design:

No Depe	ndencies	Dependencies
Year 1/2	• Unit 1.4 • Unit 1.5 • Unit 2.5	Unit 1.6 assumes that the core concepts have already been taught in unit 1.3 and compares implementing those concepts using the floor robots and ScratchJr. It is possible to teach the core concepts equally well with both floor robots and ScratchJr so the curriculum will be modified to include the core concepts in both unit 1.3 and unit 1.6, and the contrasting exercise will also be included in both units. This will make the order of delivery less critical, and allow some additional time year 1 students learning the concepts for the first time whilst year 2 students compare with their experience from the previous year/cycle. • Unit 2.4 depends on concepts taught in unit 1.4, which is in the same cycle. • Unit 2.6 has a dependency on unit 1.6, which is in the same cycle.

A	Unit 1.1 • Unit 1.2 • Unit 1.3 has no dependencies in the curriculum however, it is a dependency of unit 1.6. See the notes for unit 1.6 for details of how this will be managed. • Unit 2.1 • Unit 2.2	Unit 2.3 has a dependency on unit 1.3, which is in the same cycle.	
Cycle			
Cycle B			

No Dependencies		Dependencies
	 Unit 3.4 • Unit 3.5 • Unit 4.3 - it introduces the Logo programming language. • Unit 4.4 • Unit 4.5 	Unit 4.6 has a dependency on unit 4.3. It covers the same concept of repetition but uses the Scratch programming language, and invites students to compare the Scratch and Logo programming languages. The Scratch programming language is used in cycle A so year 4 children will already be familiar with it however, this unit has been modified to introduce Scratch in a similar manner to unit 3.3, but covering the concepts of repetition.

		Unit 3.1 • Unit 3.2 • Unit 3.3 - it assumes that KS1 has	Unit 3.6 has a dependency on unit 3.3, which is in the same cycle. • Unit 4.1 has a	Τ
		been completed and introduces the Scratch	dependency on unit 3.1, which is in the same cycle.	
		programming language. • Unit 4.2		
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	, Acle			
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ear				
	e B			
	ycl			

No Dependencies Dependencies											
			• Un	it 5.4 • Unit 5.5 • Unit 6.	.4 • Unit 6.5	Unit 5.6 has a depe	Unit 5.6 has a dependency on unit 5.3. • Unit 6.6 has dependencies on units 5.3/5.6 and				
						6.3. Unit 5.6 is in tr	6.3. Unit 5.6 is in the same cycle. The concept of variables will have to be taught in this module so the unit will be modified accordingly.				
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		∢									
	\neg	/cle									
		S									
5/6			Unit	5 1 • Unit 5 2 • Unit 5 3	- It introduces	Unit 6 3 has a dene	endency on selection whi	ch is taught in units 5 3 a	nd 5.6. Unit 5.3 is in		
ear			micr	ocontrollers and the Cru	mble programming	the same cycle and	the learning from that u	init should be sufficient to	o complete unit 6.3.		
			envi	ronment. • Unit 6.1 • Un	nit 6.2	,	0				
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		cle I									
		Š									
The Tea	ach (Computi	ing Cu	rriculum has been develo	oped by the National Cer	Itre for Computing Educa	ation's (NCCE). All learnin	ig outcomes can be desci	ribed through a highlevel		
Unders	tano	d how ne	anus, ≏tworl	ks can be used to retriev	e and share information	and how they come wit	h associated risks • Comr	uiter systems — Underst	and what a computer is		
and ho	w its	s constit	uent p	parts function together a	s a whole • Creating med	lia — Select and create a	a range of media including	g text. images. sounds. a	nd video • Data and		
inform	atio	n — Und	lerstar	nd how data is stored, or	ganised, and used to rep	resent real-world artefa	cts and scenarios • Desig	n and development — U	nderstand the activities		
involve	d in	plannin	g, crea	ating, and evaluating con	nputing artefacts • Effect	ive use of tools — Use s	oftware tools to support	computing work • Impac	t of technology —		
Unders	tand	d how in	dividu	als, systems, and society	as a whole interact with	computer systems • Pro	ogramming — Create sof	tware to allow computer	s to solve problems •		
Safety	and	security	— Un	derstand risks when usir	ng technology, and how t	o protect individuals and	d systems				
KS1 and	d KS	2 Two Ye	ear Cu	rriculum Cycle – Long Te	erm Plan The curriculum a	also links with the Educa	tion for a Connected Wo	rld Framework to ensure	a high level of online		
safety s	skills	s are dev	elope	d and progressed throug	shout pupils' time at Mill	prook Community Prima	ry School.				
Cycle	A	Veera	1/2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2		
		rear	1/2	1.4 Grouping data	1 E Digital Writing	1 6 Programming B	2 4 Dictograms	2 E Digital music	2.6 Programming B		
				T.4 OLOUPINg data		animations					
						Education for a Conne	cted World	1	4512205		
				Copyright and	Privacy and Security		Self-image and	Copyright and			
				Ownership	. ,		Identity	Ownership			

					Health, Wellbeing and		
					Lifestyle		
					Privacy and Security		
		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Cycle A	Year 3/4	Data and information	Creating media	Programming A	Data and information	Creating media	Programming B
1		3.4 Branching	3.5 Desktop	4.3 Repetition in	4.4 Data logging	4.5 Photo editing	4.6 Repetition in
		databases	publishing	shapes			games
			1	Education for a	Connected World		
		Managing Online		Copyright and		Self-image and	
		Information		Ownership		Identity	
Cycle A	Year 4/5	Data and information	Creating media	Programming A	Data and information	Creating media	Programming B
		4.4 Data logging	4.5 Photo editing	4.6 Repetition in	5.4 Flat-file databases	5.5 Introduction to	5.6 Selection in
				games		vector graphics	quizzes
				Education for a Conn	ected World		
		Self-Image and Identity	1	Privacy and Security		Online Bullying	
		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Cycle A	Year 5/6	Computing systems	Creating media	Programming A	Computing systems	Creating media	Programming A
-		and networks			and networks		
		5.4 Flat-file databases	5.5 Introduction to	5.6 Selection in	6.4 Introduction to	6.5 3D modelling	6.6 Sensing
			vector graphics	quizzes	spreadsheets		movement
				Education for a	Connected World		
		Managing Information	Online			Privacy and Security	
Cycle B		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
-	Year 1/2	Computing systems	Creating media	Programming A	Computing systems	Creating media	Programming B
		and networks	-		and networks		
		1.1 Technology	1.2 Digital painting	1.3 Moving a robot	2.1 Information	2.2 Digital	2.3 Robot algorithms
		around us			technology around us	photography	
				Education for a Conn	ected World		·
		Health, Wellbeing			Health, Wellbeing and	Self-image and	
		and Lifestyle			Lifestyle	Identity	
		Copyright and					
		Ownership					
		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2

Cycle B	Yea	r 3/4	Computing systems	Creating media	Programming A	Computing systems	Creating media	Programming A
			and networks			and networks		
			3.1 Connecting	3.2 Stop-frame	3.3 Sequencing	4.1 The internet	4.2 Audio production	3.6 Events and
			computers	animation	sounds			actions in programs
				1	Education for a	Connected World		
				Managing Online		Managing Online	Copyright and	
				Information		Information	Ownership	
				Copyright and				
				Ownership				
			Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
			Data and information	n Creating media		Data and information	Creating media	Programming B
	Yea	r 4/5	4.1 The internet	4.2 Audio production	4.3 Repetition in	5.1 Systems and	5.2 Video production	5.3 Selection in
					shapes	searching		physical computing
					Education for a	Connected World		
				Managing Online		Managing Online	Copyright and	
				Information		Information	Ownership	
				Copyright and				
				Ownership				
			Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Cycle B	Yea	r 5/6	Data and information	Creating media	Programming B	Data and information	Creating media	Programming B
			5.1 Systems and	5.2 Video production	5.3 Selection in	6.1 Communication	6.2 Webpage creation	6.3 Variables in
			searching		physical computing	and collaboration		games
					Education for a	Connected World	1	
			Managing Information	n Online		Online Relationships	Online Relationships M	anaging Information
						Copyright and	Online Copyright and O	wnership
		T				Ownership		
		Autu	mn1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Receptio	n - Elm	My O	nline Life	Technology & Me	Pretty Pictures	Talking Technology	Nursery Rhyme Coding	Beats & Rhythms
		<u>My O</u>	<u>nline Life Planning -</u>	Technology & Me	Pretty Pictures	Talking Technology	Nursery-Rhyme-Coding-	Beats & Rhythms
		Rece	otion	Planning - Reception	Planning - Reception	Planning - Reception	Planning-Reception.pdf	Planning - Reception
		<u>(knov</u>	vsleyclcs.org.uk)	(knowsleyclcs.org.uk)	(knowsleyclcs.org.uk)	(knowsleyclcs.org.uk)	(knowsleyclcs.org.uk)	(knowsleyclcs.org.uk)
Online Saf	fety	Smar	<u>tie the Penguin </u>	Smartie the Penguin	Digiduck's Big	Digiduck's Famous	Chicken Clicking by	Detective Digiduck
BOOK FOCL	IS	<u>Child</u>	<u>net</u>	<u>Childnet</u>	Decision Childnet	Friend Childnet	Jeanne Willis and Tony	<u>Childnet</u>
		EYFS	Story A	EYFS Story B			Ross #Safer Internet day	
							<u>- YouTube</u>	
Educated	for a	Onlin	e Bullying		Health, Well-being		Online Relationships	
Connecte	d World				and Lifestyle			

CLC SESSIONS		Thursday 7 th Dec- Shape Hunt I can select and use technology for particular purposes. I can do the basics with technology. I can use a camera. I can discuss the use of technology in the world around me.			Thurs 2 nd May 2024 - Robots (Simple Algorithms) I can select and use technology for particular purposes. I can explain sequencing. I can explain an algorithm. I can give instructions to a programmable toy.	
Reception /Year 1-Pine	My Online Life My Online Life Planning - Reception (knowsleyclcs.org.uk)	What is a computer? In this activity, the children will learn about computers, their different parts and their peripherals. They will learn new digital skills as they work with text and images. The children will create algorithms and programs using Scratch Jr. There are additional continuous provision ideas to try. What is a computer Planning - Year 1 (knowsleyclcs.org.uk) I can use technology to create and present my ideas. I can recognise the ways we use technology in our classroom, my home and community. I can independently debug simple sequence errors in a program. (CS) I can create algorithms that can be turned into a program using a robot or digital device. I can use logical reasoning to predict the outcome of simple programs.	Drawing With Shapes This activity blends art and maths. The children will learn excellent drawing skills and master digital drawing tools while exploring shapes and numbers, following an algorithm and problem-solving. The children will also participate in a QR code scavenger hunt to record and capture data in a tally and simple bar chart. Drawing with Shapes - Planning - Year 1 (knowsleyclcs.org.uk) (IT) I can organise, store and retrieve my digital work. (IT) I can collect and sort data. I can use technology to create and present my ideas. (IT) I can do the basics with an iPad or technology. I can communicate politely via the internet. (Online Relationships).	Robots In this activity, the children will explore robots, computational thinking, sequencing and practice giving instructions to complete tasks. The children will learn new digital skills and create an interactive wall display that uses QR codes. Including a range of continuous provision activities. <u>Robots-Planning- Reception.pdf</u> (knowsleyclcs.org.uk) I can do the basics with technology. (drawing, typing & moving objects). I can explain sequencing. I can explain an algorithm. I can give instructions to a programmable toy. I can select and use technology for particular purposes.	News Presenter In this activity children will become news reporters. They will be given a series of break news stories based on popular traditional tales. The children will film short clips using green screen before sharing/saving their work. <u>News Presenter Year 1</u> <u>Planning</u> (knowsleyclcs.org.uk) I can do the basics with technology. (IT) I can use technology to create and present my ideas. (IT) I can use technology to create and present my ideas. (IT) I can organise and store my digital work. (CS) I can follow a simple algorithm.use a search engine. (MS) I can take a good quality photograph and video on an iPad/ digital camera. (DL) I can communicate politely via the internet. (DL) I am aware that content online is owned by the person that created it.	Modern Tales Using the vehicle of the children's stories, the children will learn to navigate the rules of online safety and communication. The children will learn about web searching, basic keyboard skills and creating digital content. The children will finally make a simple animation based on an online situation they may encounter. Modern Tales Planning - Year 1 (knowsleyclcs.org.uk) (IT) I can use technology to create and present my ideas. (DL) I can recognise the ways we use technology in our classroom, my home and community. (IT) I can organise and store my digital work. (IT) I can collect and sort data. (IT) I can do the basics with

						technology. (IT) I can take
						a good quality
						photograph and video on
						an iPad/digital camera.
						(DL) I know the rules of
						using technology at home
						or in school. (DL) I can
						explain what personal
						information is and give
						examples of it
						(DL) L can use a search
						engine
						(DL) Lean describe how to
						behave online in ways
						that do not upset others
						that do not upset others
						and can give examples.
						(DL) I understand
						something online may
						upset and know where to
						find help it anything does
CLC SESSIONS		Thursday 30 th Nov- Animal			Thursday 9 th May	
		Safari			2024 – Email me	
		I can select and use			In this unit children will learn	
		technology for particular			about online communication	
		purposes. I can do the basics			and sending their first email.	
		with technology. (drawing,			(DL) I can recognise the ways	
		typing & moving objects) I can			we use technology in our	
		use a camera.			classroom, my home and	
					community (DL) I can	
					communicate politely via the	
					internet (DL) I know the rules	
					of using technology at home or	
					in school (DL) I can explain	
					in school. (DE) I can explain	
					what personal mornation is	
					and give examples of it. (11) I	
					can use technology to create	
					and present my ideas. (11) I can	
					organise and store my digital	
					work. (MS) I can do the basics	
					with technology.	
Mandatory Skills	I can do the basics with	I can go online.	I can select and use	I can use a search engine.	I can select and use technology	I can explain sequencing.
Age appropriate	technology.	I can use a search engine.	technology for particular	I can discuss the use of	for particular purposes.	I can select and use
skills for the use	l can use a camera.	I can discuss the use of	purposes.	technology in the world		technology for particular
of core devices	I can go online.	technology in the world	I can do the basics with	around me.	I can explain sequencing.	purposes.
and annlications	I can discuss the use of	around me.	technology.	I can go online.	I can explain an algorithm.	I can do the basics with
	technology in the world		l can use a camera.		I can give instructions to a	technology.
1	around mo		1		programmable toy	1

within their setting. Digital Literacy/ E-Safety Information Technology Computer	I understand that people can talk to each other (communication) online. I can use a search engine. I can discuss the rules for staying safe online. I know online content is made and belongs to someone.	I understand that people can talk to each other (communication) online. I can select and use technology for particular purposes. I can do the basics with technology.		I can do the basics with technology. I can select and use technology for particular purposes. Robots I can select and use technology for particular	News Presenter (MS) I can do the basics with technology. (IT) I can use technology to create and present my ideas. (DL) I can use a search engine. (MS) I can take a good quality	I can select and use technology for particular purposes. I can use a camera. Modern Tales (IT) I can use technology to create and present my ideas. (DL) I can recognise
Science Mandatory Skill		I can use a camera.		purposes. I can explain sequencing. I can explain an algorithm. I can give instructions to a programmable toy.	photograph and video on an iPad/ digital camera. (IT) I can organise and store my digital work. (DL) I can communicate politely via the internet. (IT) I can collect and sort data. (DL) I am aware that content online is owned by the person that created it.	the ways we use technology in our classroom, my home and community. (IT) I can organise and store my digital work. (DL) I can use a search engine. (IT) I can collect and sort data. (DL) I understand something online may upset and know where to find help it anything does. (IT) I can do the basics with technology. (DL) I can describe how to behave online in ways that do not upset others and can give examples. (IT) I can take a good quality photograph and video on an iPad/digital camera. (DL) I know the rules of using technology at home or in school. (DL) I can explain what personal information is and give examples of it.
Breadth of Study	These activities are to supp Stage that provide continu place to progress them to t	port EYFS practitioners in pro ity and stepping stones into the expected attainment at	oviding a range of Comp the KS1 curriculum. Ear the end of KS1. The 'My	uting/ICT opportunities ly Years Computing asse Online Life' activity supp	and experiences for childrer ssment is based on pupils ha ports one of the key aims of	n in the Foundation aving the initial skills in the government's
EYFS	Internet Safety Strategy (D effective strategies for und <u>Understanding the World:</u> technologies – using came appropriate skills for the us implemented as programs	igital Literacy) of supporting lerstanding and handling on People and communities, t ras, photocopiers, CD player se of core devices and applic on digital devices; and that	g children to stay safe an line risks. The framewor the world and technolog rs, tape recorders and pr cations within their setti programs execute by fo	Id make a positive contri ik has been produced by gy. Practitioners should s rogrammable toys, in add ng. Computer Science (C llowing precise and unar	bution online, as well enabli the UK Council for Child Inte support children in experien dition to computers. Essenti S): Understand what algorit nbiguous instructions. Creat	ing teachers to develop ernet Safety (UKCCIS). cing a range of al (MS): Age hms are; how they are te and debug simple

Year 1	programs. Use logical reasoning to predict the behaviour of simple programs. Information Technology (IT): Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Digital Literacy (DL): 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. Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following a sequence of instructions. Write and test simple programs. Use logical reasoning to predict the behaviour of simple programs. Organise, store, manipulate and retrieve data in a range of digital formats. Communicate safely and respectfully online, keeping personal information private and recognise common uses of information technology beyond school.						
Computing Knowsley CLC Scheme of Work	My Online Life This unit has been developed to improve children's knowledge of the risks of their online lives and to develop skills when using online services. It takes a holistic approach to each element of their online lives. The resources included in this module aim to stimulate classroom discussions about certain situations that may arise online and to get the children to think critically about their online lives. My Online Life Planning - <u>Reception</u> (knowsleyclcs.org.uk)	Technology & Me This unit helps children to understand and explore the technology around them. The children will experience using a digital device to photograph and record videos. They will move and sort objects on a screen, create digital drawings and record audio. Finally, the children will be introduced to keyboards and using the internet to find images. <u>Technology & Me Planning</u> <u>- Reception</u> (knowsleyclcs.org.uk)	Pretty Pictures The children will learn to take photos, edit and share them as they undertake creative tasks. This important skill will enable them to document their learning and ideas. The children will also learn the basic of recording videos and audio to explain their thinking. Key Skills: Photography, using a device safely and audio/video skills. <u>Pretty Pictures</u> <u>Planning - Reception</u> (knowsleyclcs.org.uk)	Talking TechnologyIn this computing activity,the children will learnhow to; create a digitaldrawing, use a searchengine to find and saveimages, record audio andcreate an animated story.The aim is to develop thechildren's oracy,imagination andsequencing skills.Essential Skills: Movingobjects on a digital device,going online, using asearch engine, digitaldrawing, and animationskills.Talking TechnologyPlanning - Reception(knowsleyclcs.org.uk)	Nursery Rhyme Coding Using the theme of traditional tales, this activity develops computational thinking, such as the sequencing of instructions and promotes core technology skills. This activity is designed to introduce key computing vocabulary e.g. sequencing and algorithm. The children will also learn about using programmable toys, using technology safely/sensibly and working with a partner. Key Skills: Algorithms and IT Skills. Nursery-Rhyme-Coding- Planning-Reception.pdf (knowsleyclcs.org.uk)	Beats & Rhythms The children will explore simple sound and music creation apps to make musical loops based on fairy tale characters. The children will then sequence repeating dance moves to produce their dance routine videos; this introduces sequencing and algorithms. Beats & Rhythms Planning - Reception (knowsleyclcs.org.uk)	
Online Safety Book Focus	Smartie the Penguin Childnet EYFS Story A	Digiduck's Big Decision Childnet	Smartie the Penguin <u>Childnet</u> Year 1 Book B	Digiduck's Famous Friend Childnet	<u>Chicken Clicking by</u> Jeanne Willis and Tony Ross #Safer Internet day - YouTube	Detective Digiduck Childnet	
Educated for a Connected World	Online Bullying		Self-Image and Identity		Online Relationships		

Threshold	Connect	Communicate	Communicate	Communicate	Code	Code
Concont						
Concept	This concept involves	This concept involves using	This concert involves	This concept involves	This concept involves	This concert involves
	developing an understanding	apps to communicate one's	using anns to	using anns to	developing an understanding	developing an
	of how to safely connect with	ideas	communicate one's ideas	communicate one's ideas	of instructions logic and	understanding of
	others.	lucus.	communicate one sideas.	communicate one sideas.	sequences.	instructions, logic and
						sequences.
Milestone1	Understand the online risks	Use a range of applications	Use a range of	Use a range of	Competence in coding for a	Competence in coding
	and the age rules for sites.	and devices in order to	applications and	applications and	variety of practical and	for a variety of
	Explore Digi duck online	communicate ideas, work	devices in order to	devices in order to	inventive purposes,	practical and inventive
	safety books	and messages.	communicate ideas,	communicate ideas,	including the application of	purposes, including
	(one per term) to keep	The children learn how to	work and messages.	work and messages.	ideas within other	the application of
	children safe online. Share	use classroom technology	The children learn how	The children learn that	subjects. The children learn	ideas within other
	online safety newsletter	safely and responsibly,	to use classroom	there are many	that an algorithm is a list of	subjects. The children
	with parents on ClassDojo	including the basic use of a	technology safely and	different types of	instructions that solves a	learn that an algorithm
	and encourage parents to	camera and going online.	responsibly, including	media content	problem. The children learn	is a list of instructions
	attend parent meetings	The children learn to type	the basic use of a	including; sound,	to sequence a series of	that solves a problem.
	with Knowsley CLC. The	keywords in a search	camera and going	images, books,	events and explain the	The children learn to
	children learn the Internet	engine (Google). The	online. The children	podcasts/audiobooks	importance of sequencing.	sequence a series of
	can be used to	children learn how to	learn to recognise and	and video via the web.	The children learn through	events and explain the
	communicate with others.	access the web on a	discuss common uses	The children learn to	play about action/reaction	importance of
	The children learn simple	classroom device. Show	of information	recognise and discuss	and will be asked "what do	sequencing. The
	online safety rules. The	children how to use	technology in school	common uses of	you think will happen?"	children learn through
	children learn people create	cameras and ipads to take	and outside of school.	information technology	when using technology or	play about
	online content such as	photos and how to post on	The children learn how	in school and outside of	attempting to solve a	action/reaction and will
	video and websites.	their ClassDoio portfolios.	various devices and	school. The children	problem.	be asked "what do you
		Show children how to	apps can be used in the	learn to type keywords	P	think will happen?"
		record videos and allow	classroom. The	in a search engine		when using technology
		them to choose an ipad to	children can	(Google). The children		or attempting to solve
		record when playing. Show	independently choose	learn how to access the		a problem.
		children a keyboard and	an application for a	web on a classroom		
		allow them access during	particular purpose F g	device.		
		role play.	drawing a picture.			
	Autumn1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2

Year 1 Cedar Teach Computing curriculum National Centre for Computing Education	Computing systems and networks – Technology around us <u>Computing systems and networks</u> – Technology around us (teachcomputing.org) Develop childrens' understanding of technology and how it can help them. They will become more familiar with the different components of a computer by developing their keyboard and mouse skills, and also start to consider how to use technology responsibly.	Creating media – Digital painting Creating media – Digital painting (teachcomputing.org) Explore the world of digital art and its exciting range of creative tools with your learners. Empower them to create their own paintings, while getting inspiration from a range of other artists. Conclude by asking them to consider their preferences when painting with, and without, the use of digital devices.	Programming A – Moving a robot Programming A – Moving a robot (teachcomputing.org) This unit introduces learners to early programming concepts. Learners will explore using individual commands, both with other learners and as part of a computer program. They will identify what each floor robot command does and use that knowledge to start predicting the outcome of programs. The unit is paced to ensure time is spent on all aspects of programming and builds knowledge in a structured manner. Learners are also introduced to the early stages of program design through the introduction of algorithms.	Data and Information – Grouping Data Data and information – Grouping data (teachcomputing.org) This unit introduces pupils to data and information. They will begin by using labels to put objects into groups, and labelling these groups. Pupils will demonstrate that they can count a small number of objects, before and after the objects are grouped. They will then begin to demonstrate their ability to sort objects into different groups, based on the properties they choose. Finally, pupils will use their ability to sort objects into different groups to answer questions about data.	Creating media – Digital writing Creating media – Digital writing (teachcomputing.org) Promote your learners' understanding of the various aspects of using a computer to create and change text. Learners will familiarise themselves with typing on a keyboard and begin using tools to change the look of their writing, and then they will consider the differences between using a computer and writing on paper to create text.	Programming B - Programming animationsProgramming B - Programming animations (teachcomputing.org)Learners will also be introduced to the early stages of program design through the introduction of algorithms. This unit introduces learners to on- screen programming through ScratchJr. Learners will explore the way a project looks by investigating sprites and backgrounds. They will use programming blocks to use, modify, and create programs. Learners will also be introduced to the early stages of program design through the introduction of algorithms.
	My Online Life (Knowsley CLC) – My Online Life has been develop the different elements of their or to get the children to think critica Year 1 to teach one lesson	ed to improve children's knowled nline lives. The resources included ally about their online lives. per term over the academi	lge of the risks of their online d in this module are aimed at c year.	lives and to develop skills wh stimulating classroom discus	en using online services. It takes sions about certain situations that	a holistic approach to each of It may arise when online and
Online Safety Book Focus	Smartie the Penguin Childnet Year 1 Book A	Smartie the Penguin Childnet Year 1 Book B		Digiduck and the Magic Castle Childnet	<u>Digiduck Saves the Day </u> <u>Childnet</u>	Troll Stinks Troll Stinks.pdf
Education for a Connected World		Copyright and P Ownership	rivacy and Security		Self-image and Identity Health, Wellbeing and Lifestyle Privacy and Security	Copyright and Ownership

KS1 Breadth of Study	Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following a sequence of instructions. Write and test simple programs. Use logical reasoning to predict the behaviour of simple programs. Organise, store, manipulate and retrieve data in a range of digital formats. Communicate safely and respectfully online, keeping personal information private and recognise common uses of information technology beyond school.						
Progression	As this is a Year 1 unit, no prior knowledge is assumed. This unit progresses students' knowledge and understanding of technology and how they interact with it in school. Learners will build their knowledge of parts of a computer and develop the basic skills needed to effectively use a computer keyboard and mouse. This unit directly precedes the Y2 Computer systems and networks unit, IT around us.	Learners should be familiar with: • How to switch their device on • Usernames • Passwords For an introduction to keyboard and mouse skills, learners may benefit from completing the Year 1 Computing Systems & Networks unit prior to this unit.	As this is a Year 1 unit, no prior knowledge is assumed. This unit progresses learners' knowledge and understanding of giving and following instructions. It moves from giving instructions to each other to giving instructions to a robot by programming it.	This unit will introduce learners to data and information. It will introduce learners to the concept of labelling and grouping objects based on their properties. Learners will develop their understanding that objects can be given labels, which is fundamental to their future learning concerning databases and spreadsheets. In addition, learners will begin to improve their ability to use dragging and dropping skills on a device. Following this unit, in year 2, learners will present data graphically in pictograms.	This unit progresses the learners' knowledge and understanding of using computers to create and manipulate digital content, focussing on using a word processor. The learners will develop their ability to find and use the keys on a keyboard in order to create digital content. The learners are then introduced to manipulating the resulting text, making cosmetic changes, and justifying their reason for making these changes. Following this unit, learners will further develop their digital writing skills in the Year 3 – 'Desktop publishing' unit and the Year 6 – 'Web page development' unit.	This unit progresses learners' knowledge and understanding of programming and follows on from 'Programming A – Moving a robot', where children will have learned to program a floor robot using instructions.	

<u>National</u> <u>curriculum links</u>	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	KS1 Computing Use technology purposefully to create, organise, store, manipulate, and retrieve digital content KS1 Art and Design Pupils should be taught: To develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form, and space About the work of a range of	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 Bacognice common uses of	Use technology purposefully to create, organise, store, manipulate, and retrieve digital content Use technology safely and respectfully.	Use technology purposefully to create, organise, store, manipulate, and retrieve digital content Use technology safely and respectfully, keeping personal information private Further national curriculum links English – writing (Y1) Write sentences by: saying out loud what they are going to write about composing a sentence orally	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.
	online technologies.	artists, craft makers, and designers, describing the differences and similarities between different practices and disciplines and making links to their own work	information technology beyond school		before writing it sequencing sentences to form short narratives re-reading what they have written to check that it makes sense.	
Threshold Concept	Communicate This concept involves using apps to communicate one's ideas. Connect This concept involves developing an understanding of how to safely connect with others.	Communicate This concept involves using apps to communicate one's ideas.	Code This concept involves developing an understanding of instructions, logic and sequences. Connect This concept involves developing an understanding of how to safely connect with others.	Collect This concept involves developing an understanding of databases and their uses. Connect This concept involves developing an understanding of how to safely connect with others.	Communicate This concept involves using apps to communicate one's ideas. Connect This concept involves developing an understanding of how to safely connect with others.	Code This concept involves developing an understanding of instructions, logic and sequences.
Milestone 1	Use a range of applications and devices in order to communicate ideas, work and messages.	Use a range of applications and devices in order to communicate ideas, work and messages.	Motion- Control motion by specifying number of steps to travel, direction and turn.	Use simple databases to record information in areas across the curriculum.	Use a range of applications and devices in order to communicate ideas, work and messages.	Motion- Control motion by specifying number of steps to travel, direction and turn. Looks – Add text strings, show and hide objects

	Understand online risks and			and change the features
	the age rules for sites.			of all object.
				Sound – Select sounds
				and control when they
				are neard, their duration and volume.
				Draw- Control when
				drawings appear and set
				shape.
				Events – Specify user
				inputs (such as clicks) to control events.
				Control – Specify the
				nature of events (such as
				Sensing – Create
				conditions for actions by
				(such as responses to
				questions like: What is
	<u> </u>			your name?).
Educated for a	Online Bullying	Online Reputation	Privacy and Security	
connecteu world				

	Data and Information –	Creating media – Digital	Programming B -	Data and information –	Creating media - Digital	Programming B -
Year 1/2 Willow	Grouping Data – Unit 1.4	writing – Unit 1.5	Programming	Pictograms – Unit 2.4	music – Unit 2.5	Programming quizzes-
-	Data and information – Grouping	Creating media – Digital writing	animations – Unit 1.6	Data and information –	Creating media - Digital music	Unit 2.6
	data (teachcomputing.org) This unit introduces pupils to data	(teachcomputing.org)	Programming B -	<u>Pictograms</u>	(teachcomputing.org)	Programming B -
	and information. They will begin by		Programming animations	(teachcomputing.org) Learners will begin to	In this unit, learners will be using a computer to create music. They	Programming quizzes
	using labels to put objects into		(teachcomputing.org)	understand what the term	will listen to a variety of pieces of	(teachcomputing.org) This unit initially recaps on
	groups, and labelling these groups.	Promote your learners'		data means and how data	music and consider how music can	learning from the Year 1
	Pupils will demonstrate that they	understanding of the various		can be collected in the form	make them think and feel.	ScratchJr unit 'Programming
	objects, before and after the	aspects of using a computer to	Loarnors will also bo	of a tally chart. They will learn the term 'attribute' and	Learners will compare creating	B – Programming
	objects are grouped. They will then	will familiarise themselves with	introduced to the early	use this to help them	Learners will look at patterns and	animations . Learners begin
	begin to demonstrate their ability	typing on a keyboard and begin	stages of program design	organise data. They will then	purposefully create music.	sequences of commands
	to sort objects into different	using tools to change the look of	through the introduction of	progress onto presenting		have an outcome, and make
	they choose. Finally, pupils will use	their writing, and then they will	algorithms. This unit	data in the form of		predictions based on their
	their ability to sort objects into	using a computer and writing on	screen programming through	diagrams. Learners will use		learning. They use and modify designs to create
	different groups to answer	paper to create text.	ScratchJr. Learners will	the data presented to answer		their own quiz questions in
	questions about data.		explore the way a project	questions.		ScratchJr, and realise these
			looks by investigating sprites			designs in ScratchJr using
			use programming blocks to			blocks of code. Finally, learners evaluate their work
			use, modify, and create			and make improvements to
			programs. Learners will also			their programming projects.
			be introduced to the early			
			through the introduction of			
			algorithms.			
Online Safety	<u>Smartie the Penguin </u>	Digiduck and the Magic	Digiduck Saves the Day	Troll Stinks	Smartie the Penguin	Jessie Friends videos
Book Focus	<u>Childnet</u>	Castle Childnet	<u> Childnet</u>	Troll Stinks.pdf	<u>Childnet</u>	(thinkuknow.co.uk)
	Year 1 Book A				Year 2 Book A	Watching videos
						Sharing pictures
						Playing games
Education for a		Copyright and Ownership	Privacy and Security		Self-image and Identity	Copyright and
Connected					Health, Wellbeing and	Ownership
World					Lifestyle	
					Privacy and Security	Muthe and test storals
KS1 Breadth of	understand what algorithms are,	now they are implemented as pro	programs on digital devices, and	a that programs execute by fo	nowing a sequence of instructions	. write and test simple
Study	respectfully online keeping perso	onal information private and reco	programs. Organise, store, m	ation technology beyond sch		unicate safety and
Progression	This unit will introduce learners to	This unit progresses the learners'	This unit progresses learners'	This unit progresses students'	This unit begins the learners'	This unit progresses learners'
	data and information. It will	knowledge and understanding of	knowledge and	knowledge and	understanding of how photos are	knowledge and
	introduce learners to the concept	using computers to create and	understanding of	understanding of grouping	captured and can be manipulated	understanding of instructions
	based on their properties. Learners	focussing on using a word	from 'Programming A –	Data and Information unit	this unit, learners will develop	logical reasoning to predict
	will develop their understanding	processor. The learners will	Moving a robot', where	where learners labelled	their photo editing skills in Year 4.	outcomes.
	that objects can be given labels,	develop their ability to find and use	children will have learned to	objects and grouped them		

	which is fundamental to their future learning concerning databases and spreadsheets. In addition, learners will begin to improve their ability to use dragging and dropping skills on a device. Following this unit, in year 2, learners will present data graphically in pictograms.	the keys on a keyboard in order to create digital content. The learners are then introduced to manipulating the resulting text, making cosmetic changes, and justifying their reason for making these changes. Following this unit, learners will further develop their digital writing skills in the Year 3 – 'Desktop publishing' unit and the Year 6 – 'Web page development' unit.	program a floor robot using instructions.	based on different properties. In Year 3 learners develop their understanding of attributes (properties) using branching databases to structure data according to different object attributes.		
National Curriculum Links	Use technology purposefully to create, organise, store, manipulate, and retrieve digital content Use technology safely and respectfully.	Use technology purposefully to create, organise, store, manipulate, and retrieve digital content Use technology safely and respectfully, keeping personal information private Further national curriculum links English – writing (Y1) Write sentences by: saying out loud what they are going to write about composing a sentence orally before writing it sequencing sentences to form short narratives re-reading what they have written to check that it makes sense.	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.	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. Art and design To develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form, and space.	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
Threshold Concepts	Collect This concept involves developing an understanding of databases and their uses. Connect This concept involves developing an understanding of how to safely connect with others.	Communicate This concept involves using apps to communicate one's ideas. Connect This concept involves developing an understanding of how to safely connect with others.	Code This concept involves developing an understanding of instructions, logic and sequences.	Collect This concept involves developing an understanding of databases and their uses. Connect This concept involves developing an understanding of how to safely connect with	Communicate This concept involves using apps to communicate one's ideas. Connect This concept involves developing an understanding of how to safely connect with others.	Code This concept involves developing an understanding of instructions, logic and sequences.

Milestone 1	Use simple databases to	Use a range of applications	Motion- Control motion	Use simple databases	Use a range of applications	Motion- Control motion
	record information in areas	and devices in order to	by specifying number of	to record information in	and devices in order to	by specifying number of
	across the curriculum.	communicate ideas, work and	steps to travel, direction	areas across the	communicate ideas, work and	steps to travel, direction
		messages.	and turn.	curriculum	messages.	and turn.
			Looks – Add text strings,			Looks – Add text strings,
			show and hide objects			show and hide objects
			and change the features			and change the features
			of an object.			of an object.
			Sound – Select sounds			Sound – Select sounds
			and control when they			and control when they
			are heard, their duration			are heard, their duration
			and volume.			and volume.
			Draw- Control when			Draw- Control when
			drawings appear and set			drawings appear and set
			the pen colour, size and			the pen colour, size and
			shape.			shape.
			Events Constitution			Franks Constitution
			Events – Specify User			Events – Specify user
			inputs (such as clicks) to			inputs (such as clicks) to
			control events.			control events.
			Control – Specify the			Control – Specify the
			nature of events (such as			nature of events (such as
			a single event or loop).			a single event or loop).
			Sensing – Create			Sensing – Create
			conditions for actions by			conditions for actions by
			waiting for a user input			waiting for a user input
			(such as responses to			(such as responses to
			questions like: What is			questions like: What is
			your name?).			your name?).
Educated for a	Online Bullying		Online Reputation		Self-Image and Identity	
Connected World						
Year 2 Cherry	Autumn1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2

	Computing systems and	Creating media – Digital	Programming A –	Data and information –	Creating media - Digital	Programming B -
	notworks - IT around us	nhotography	Pohot algorithms	Rictograms	music	Programming quizzos
	fietworks – fr around us			Pictogranis	Caractine and dia Disital acuais	Programming Quizzes
	T around us	<u>Creating media – Digitai</u>	<u>Programming A – Robot</u>	Data and mormation -	(teachcomputing org)	Programming guizzos
	(teachcomputing arg)	(toochcomputing org)	(toochcomputing org)	(teachcomputing arg)	In this unit, loarners will be using a	(teachcomputing org)
	Learners will develop their	(teachcomputing.org)	This unit develops learners'	Learners will begin to	computer to create music. They	This unit initially record on
	understanding of what		understanding of	understand what the term	will liston to a variaty of piacos of	loarning from the Year 1
	information technology (IT) is and	recognise that different	instructions in sequences	data means and how data	music and consider how music can	Scratchly unit 'Programming
	will begin to identify examples.	devices can be used to capture	and the use of logical	can be collected in the form	make them think and feel	B – Programming
	They will discuss where they have	photographs and will gain	reasoning to predict	of a tally chart. They will	Learners will compare creating	animations', Learners begin
	seen IT in school and beyond, in	experience capturing, editing,	outcomes. Learners will use	learn the term 'attribute' and	music digitally and non-digitally.	to understand that
	settings such as shops, hospitals,	and improving photos. Finally,	given commands in different	use this to help them	Learners will look at patterns and	sequences of commands
	and libraries. Learners will then	they will use this knowledge to	orders to investigate how	organise data. They will then	purposefully create music.	have an outcome, and make
	investigate how IT improves our	recognise that images they	the order affects the	progress onto presenting		predictions based on their
	world, and they will learn about	see may not be real.	outcome. They will also learn	data in the form of		learning. They use and
	the importance of using IT		about design in	pictograms and finally block		modify designs to create
	responsibly.		programming. They will	diagrams. Learners will use		their own quiz questions in
			develop artwork and test it	the data presented to answer		ScratchJr, and realise these
			for use in a program. They	questions.		designs in ScratchJr using
			will design algorithms and			blocks of code. Finally,
			programs and dobug them			and make improvements to
			programs and debug them.			their programming projects
						then programming projects.
Online Safety	Smartie the Penguin	Once Upon a Time ONLINE	Smartie the Penguin	Discover how	goldilocks pdf	lessie Friends videos
Dook Foous	Childnet	By David Bedford -	Childnet	exploring the online	Bolanocks.put	(thinkuknow co.uk)
BOOK FOCUS	Vear 2 Book A	VouTuba	Voar 2 Book B	world affects young		(LIIIIKUKIIOW.CO.UK)
	Teal 2 DOOK A	Tourube	Teal 2 BOOK B	world affects young		Watching videos
				people - Own It - BBC		Sharing pictures
						Playing games
Education for a		Copyright and Ownership	Privacy and Security		Self-image and Identity	Copyright and
Connected					Health, Wellbeing and	Ownership
World					Lifestyle	
Wona					Privacy and Security	
KS1 Breadth of	Understand what algorithms a	are, how they are implemented as	programs on digital devices.	and that programs execute by	following a sequence of instruction	ons. Write and test simple
Study	programs. Use logical reaso	ning to predict the behaviour of si	mple programs. Organise. sto	re, manipulate and retrieve d	ata in a range of digital formats. C	ommunicate safely and
Study	res	pectfully online, keeping personal	information private and reco	gnise common uses of inform	ation technology beyond school.	
Progression	This unit progresses learners'	This unit begins the learners'	In advance of the lessons in	This unit progresses students'	This unit begins the learners'	This unit progresses learners'
	understanding of technology and	understanding of how photos are	this Year 2 unit, learners	knowledge and	understanding of how photos are	knowledge and
	how they interact with it. They will	captured and can be manipulated	should have had some	understanding of grouping	captured and can be manipulated	understanding of instructions
	develop this understanding to	for different purposes. Following	experience of creating short	data. It builds on the Year 1	for different purposes. Following	in sequences and the use of
	become familiar with the term	this unit, learners will develop	programs using floor robots	Data and Information unit	this unit, learners will develop	logical reasoning to predict
	information technology and will be	their photo editing skills in Year 4.	and predicting the outcome	where learners labelled	their photo editing skills in Year 4.	outcomes.
	able to identify common features		of a simple program. This	objects and grouped them		
	of II. Inis unit also builds on the		unit progresses learners'	based on different		
	technology safely and responsibly		knowledge and	properties. In Year 3 learners		
	technology safety and responsibly.		and how they are	of attributes (properties)		
			implemented as programs on	using branching databases to		
			implemented as programs on	using branching uatabases to		

			digital devices. Learners will spend time looking at how the order of commands affects outcomes. Learners will use this knowledge and logical reasoning to trace programs and predict outcomes.	structure data according to different object attributes.		
National Curriculum Links	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.	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. 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.	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. Art and design To develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form, and space.	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
Threshold Concept	Communicate This concept involves using apps to communicate one's ideas. Connect This concept involves developing an understanding of how to safely connect with others.	Communicate This concept involves using apps to communicate one's ideas.	Code This concept involves developing an understanding of instructions, logic and sequences. Connect This concept involves developing an understanding of how to safely connect with others.	Collect This concept involves developing an understanding of databases and their uses. Connect This concept involves developing an understanding of how to safely connect with others.	Communicate This concept involves using apps to communicate one's ideas. Connect This concept involves developing an understanding of how to safely connect with others.	Code This concept involves developing an understanding of instructions, logic and sequences.
Milestone 1	Use a range of applications and devices in order to	Use a range of applications and devices in order to	Motion- Control motion by specifying number of	Use simple databases to record information in areas across the curriculum.	Use a range of applications and devices in order to	Motion- Control motion by specifying number of

	communicate ideas, work and	communicate ideas, work and	steps to travel, direction		communicate ideas, work and	steps to travel, direction
	messages.	messages.	and turn.		messages.	and turn.
	Understand online risks and					Looks – Add text strings.
	the age rules for sites.					show and hide objects
						and change the features
						of an object.
						,
						Sound – Select sounds
						and control when they
						are heard, their duration
						and volume.
						Draw- Control when
						drawings appear and set
						the pen colour, size and
						shape.
						Events – Specify user
						inputs (such as clicks) to
						control events.
						Control – Specify the
						nature of events (such as
						a single event or loop).
						Sensing – Create
						conditions for actions by
						waiting for a user input
						(such as responses to
						questions like: What is
						your name?).
Educated for a	Online Reputation		Copyright and		Self-Image and Identity	Educated for a
Connected World			Ownership			Connected World
Year 3 Maple	Autumn1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2

	Computing systems and	Creating modia Stop	Drogramming A	Data and information	Creating media – Deskton	Programming B - Events and
		Creating media - Stop-			publishing	actions in programs
	networks – Connecting	frame animation	Sequencing sounds	Branching databases	Creating media – Desktop	Programming B - Events and
	computers	Creating media - Stop-frame	Programming A - Sequencing	Data and information –	publishing (teachcomputing.org)	actions in programs
	Computing systems and networks	animation (teachcomputing.org)	sounds (teachcomputing.org)	(teachcomputing arg)		(teachcomputing.org)
	– Connecting computers	Learners will use a range of	This unit explores the	(teachcomputing.org)	Learners will become familiar with	
	(teachcomputing.org)	techniques to create a ston-frame	concept of sequencing in		the terms 'text' and 'images' and	This unit explores the links
	Learners will develop their	animation using tablets. Next	programming through	Learners will develop their	understand that they can be used	between events and actions,
	understanding of digital devices,	they will apply those skills to	Scratch It begins with an	understanding of what a	to communicate messages. They	while consolidating prior
	with an initial focus on inputs,	create a story-based animation.	introduction to the	branching database is and	will use desktop publishing	learning relating to
	processes, and outputs. They will	This unit will conclude with	programming environment.	how to create one. They will	software and consider careful	sequencing. Learners begin
	digital devices Next learners will	learners adding other types of	which will be new to most	use yes/no questions to gain	choices of font size, colour and	by moving a sprite in four
	be introduced to computer	media to their animation, such as	learners. They will be	an understanding of what	type to edit and improve premade	directions (up, down, left,
	networks, including devices that	music and text.	introduced to a selection of	attributes are and now to use	documents. Learners will be	and right). They then explore
	make up a network's		motion, sound, and event	chiests Learners will create	(tomplates' (orientation' and	movement within the
	infrastructure, such as wireless		blocks which they will use to	objects. Learners will create	(placeholders' and bogin to	design to choose an
	access points and switches. Finally,		create their own programs,	branching databases. To	understand how these can support	appropriately sized sprite
	learners will discover the benefits		featuring sequences. The	conclude the unit they will	them in making their own	This unit also introduces
	of connecting devices in a network.		final project is to make a	create an identification tool	template for a magazine front	programming extensions.
			representation of a plano.	using a branching database,	cover. They will start to add text	through the use of Pen
			The unit is paced to focus on	which they will test by using	and images to create their own	blocks. Learners are given the
			all aspects of sequences, and	it. They will also consider	pieces of work using desktop	opportunity to draw lines
			huilt in a structured manner	real-world applications for	publishing software. Learners will	with sprites and change the
			Learners also apply stages of	branching databases.	look at a range of page layouts	size and colour of lines. The
			program design through this		thinking carefully about the	unit concludes with learners
			unit		purpose of these and evaluate	designing and coding their
			unit.		how and why desktop publishing is	own maze-tracing program.
					used in the real world.	
Online Sefety	Pood Out Loud TEK: THE		Dend Dummer			
Unine Salety	Read Out Loud TEK: THE		Band Runner			
Ebook/Online	MODERN CAVE BOY -		<u>8-10s CEOP</u>			
Activities	YouTube		Education			
			(thinkuknow.co.uk)			
KS2 Breadth of	Design, write and debug programs th	at accomplish specific goals, including	controlling or simulating physica	l systems; solve problems by deco	omposing them into smaller parts. Use	sequence, selection, and
Study	repetition in programs; work with var	iables and various forms of input and	output. Use logical reasoning to	explain how some simple algorith	ms work and to detect and correct error	ors in algorithms and
Study	programs.Understand computer netw	vorks including the internet; how they	can provide multiple services, su	ich as the world wide web; and th	e opportunities they offer for commun	nication and collaboration. Use
	search technologies effectively, appre	eciate how results are selected and rai	nked, and be discerning in evalua	ting digital content. Select, use ar	nd combine a variety of software (inclu	ding internet services) on a
	range of digital devices to design and	create a range of programs, systems a	and content that accomplish give	n goals, including collecting, analy	ysing, evaluating and presenting data a	nd information. Use
	technology safely, respectfully and re	sponsibly; recognise acceptable/unac	ceptable behaviour; identify a rar	nge of ways to report concerns ab	oout content and contact.	
Progression	This unit progresses learners'	This unit progresses students'	This unit assumes that	This unit progresses learners'	This unit progresses learners'	This unit assumes that
	knowledge and understanding of	knowledge and understanding of	learners will have some prior	knowledge and	knowledge and understanding of	learners will have some prior
	technology by focusing on digital	using digital devices to create	experience of programming;	understanding of the	using digital devices to combine	experience of programming.
	and non-digital devices, and	media, exploring how they can	the Y1 and Y2 topics cover	categories of data handling,	text and images building on work	The Key stage 1 National
	computers connected together as	Following this unit learners will	However, experience of	implementation It builds on	Writing Voor 1 Digital painting	Education units focus on
	a network Following this unit	further develop their video editing	other languages or	their knowledge of data and	Vear 1 and Digital Photography	floor robots and Scratchir
	learners will explore the internet	skills in Year 5	environments may also be	information from key stage 1	Year 2	however experience of other
	as a network of networks.	skins in real s.	useful.	They will continue to develop	<u></u> .	languages or environments
				their understanding of		may also be useful. The Year
				attributes and begin to		3 — Programming A unit

National Curriculum Links	Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. 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, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Maths (Lesson 1) Number and place value: solve number problems and practical problems involving these ideas. Art (Lesson 3) To improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials [for example, pencil, charcoal, paint, clay].	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. English Pupils should be taught to: draft and write by: in narratives, creating settings, characters and plot Pupils should be taught to: proof- read for spelling and punctuation errors.	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.	construct and interrogate branching databases as a means of displaying and retrieving 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.	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. English Pupils should be taught to draft and write by: in non-narrative material, using simple organisational devices [for example, headings and subheadings]. Evaluate and edit by assessing the effectiveness of their own and others' writing and suggesting improvements. Proofread for spelling and punctuation errors.	introduces the Scratch programming environment and the concept of sequences. 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 outpu.t 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.
Threshold Concept	Communicate This concept involves using apps to communicate one's ideas. Connect This concept involves developing an understanding of how to safely connect with others.	Communicate This concept involves using apps to communicate one's ideas.	Code This concept involves developing an understanding of instructions, logic and sequences. Connect This concept involves developing an understanding of how to	Collect This concept involves developing an understanding of databases and their uses. Connect This concept involves developing an understanding of how to	Communicate This concept involves using apps to communicate one's ideas. Connect This concept involves developing an understanding of how to safely connect with others.	Code This concept involves developing an understanding of instructions, logic and sequences.

			safely connect with	safely connect with		
			others	others.		
Milestone 2	Use some of the advanced features of applications and devices in order to communicate ideas, work or messages professionally. Understand online risks and the age rules for sites. Participate in class social media accounts.	Use some of the advanced features of applications and devices in order to communicate ideas, work or messages professionally.	Understand online risks and the age rules for sites. Use specified screen coordinates to control movement. Set the appearance of objects and create sequences of changes. Create and edit sounds. Control when they are heard, their volume, duration and rests. Control the shade of pens. Specify conditions to trigger events. Use IF THEN conditions to control events or objects. Create conditions for actions by sensing proximity or by waiting for a user input (such as proximity to a specified colour or a line or responses to questions). Use variables to store a value. • Use the functions define, set, change, show and hide to control the variables. • Use the Reporter operators () + () () - () () * () () / () to perform calculations.	Devise and construct databases using applications designed for this purpose in areas across the curriculum.	Use some of the advanced features of applications and devices in order to communicate ideas, work or messages professionally.	Understand online risks and the age rules for sites. Use specified screen coordinates to control movement. Set the appearance of objects and create sequences of changes. Create and edit sounds. Control when they are heard, their volume, duration and rests. Control the shade of pens. Specify conditions to trigger events. Use IF THEN conditions to control events or objects. Create conditions for actions by sensing proximity or by waiting for a user input (such as proximity to a specified colour or a line or responses to questions). Use variables to store a value. • Use the functions define, set, change, show and hide to control the variables. • Use the Reporter operators () + () () - () () * () () / () to perform calculations.
Educated for a	Online Bullying		Health, Well-being		Privacy and Security	
Connected World			and Lifestyle			
Year 4 - Holly	Autumn1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Data and information –	Creating media – Desktop publishing	Programming A –	Data and information – Data logging	Creating media – Photo editing Creating media – Photo editing	Programming B – Repetition
	Branching databases	Creating media – Desktop	Repetition in snapes	Data and information – Data	(teachcomputing.org)	Programming B – Repetition
	databases (teachcomputing.org)	publishing (teachcomputing.org)	in shapes	logging (teachcomputing.org)		in games
		Learners will become familiar with	(teachcomputing.org)	In this unit. learners will	understanding of how digital	(teachcomputing.org)
	Learners will develop their	the terms 'text' and 'images' and	Loornors will groate	consider how and why data is	images can be changed and	Learners will explore the
	understanding of what a branching	understand that they can be used	programs by planning.	collected over time. Learners	edited, and how they can then be	concept of repetition in
	database is and how to create one.	to communicate messages. They	modifying, and testing	will consider the senses that	resaved and reused. They will	programming using the
	riney will use yes/no questions to	will use desktop publishing	commands to create shapes	the environment and how	images can have and evaluate the	scratch environment. The
	attributes are and how to use	choices of font size, colour and	and patterns. They will use	computers can use special	effectiveness of their choices.	activity similar to that carried

	them to sort groups of objects. Learners will create physical and on-screen branching databases. To conclude the unit, they will create an identification tool using a branching database, which they will test by using it. They will also consider real-world applications for branching databases.	type to edit and improve premade documents. Learners will be introduced to the terms 'templates', 'orientation', and 'placeholders' and begin to understand how these can support them in making their own template for a magazine front cover. They will start to add text and images to create their own pieces of work using desktop publishing software. Learners will look at a range of page layouts thinking carefully about the purpose of these and evaluate how and why desktop publishing is used in the real world.	Logo, a text-based programming language. This unit is the first of the two programming units in Year 4, and looks at repetition and loops within programming.	input devices called sensors to monitor the environment. Learners will collect data as well as access data captured over long periods of time. They will look at data points, data sets, and logging intervals. Learners will spend time using a computer to review and analyse data. Towards the end of the unit, learners will pose questions and then use data loggers to automatically collect the data needed to answer those questions.	Throughout this unit, there are opportunities to model with photo editing applications or to demonstrate a concept using the included screen recordings. Pedagogically, it is more beneficial to model the concepts and skills to the learners, which allows for easier questioning and understanding. We recommend that you use the screen recordings to see what needs to be modelled, but give a live demonstration within the lesson. However, the videos are provided on the slides if you wish to use them instead.	out in Logo in Programming unit A, where learners can discover similarities between two environments. Learners look at the difference between count-controlled and infinite loops, and use their knowledge to modify existing animations and games using repetition. Their final project is to design and create a game which uses repetition, applying stages of programming design throughout.
Progression	This unit progresses learners' knowledge and understanding of the categories of data handling, with a particular focus on implementation. It builds on their knowledge of data and information from key stage 1. They will continue to develop their understanding of attributes and begin to construct and interrogate branching databases as a means of displaying and retrieving information	This unit progresses learners' knowledge and understanding of using digital devices to combine text and images building on work from the following units; <u>Digital</u> <u>Writing Year 1, Digital painting</u> <u>Year 1, and Digital Photography</u> <u>Year 2</u> .	Learners will create programs by planning, modifying, and testing commands to create shapes and patterns. They will use Logo, a text-based programming language. This unit is the first of the two programming units in Year 4, and looks at repetition and loops within programming.	This unit progresses learners' knowledge and understanding of data and how it can be collected over time to answer questions. Specifically, it builds on the concept of answering questions with data which is first introduced in the KS1 data and information units. The unit also introduces the idea of automatic data collection. Learners are also introduced to data in tables and graphs, knowledge they will build on in the Year 5 unit (flat file databases) and the Year 6 unit (spreadsheets).	This unit progresses students' knowledge and understanding of digital photography and using digital devices to create media. Following this unit, learners will further develop their image editing skills in Year 5 – Vector drawing.	This unit assumes that learners will have some prior experience of programming. The Year 1 and Year 2 cover floor robots and ScratchJr, and Scratch is introduced in the Year 3 programming units. However, experience of other languages or environments may also be useful.
National Curriculum Links	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.	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,	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 sequence, selection, and repetition in programs; work with variables and various forms of input and output. 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	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	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.

		analysing, evaluating, and	Use logical reasoning to	collecting, analysing,	acceptable/unacceptable	Use logical reasoning to
		presenting data and information.	explain how some simple	evaluating, and presenting	behaviour; identify a range of	explain how some simple
			algorithms work and to	data and information.	ways to report concerns about	algorithms work, and to
			detect and correct errors in		content and contact.	detect and correct errors in
		English	algorithms and programs.	Science – Lower key stage		algorithms and programs.
		Pupils should be taught to draft	Select, use and combine a	2/Year 4		Select. use and combine a
		and write by: in non-narrative	variety of software (including	Making systematic and		variety of software (including
		material, using simple	internet services) on a range	careful observations and,		internet services) on a range
		organisational devices [for	of digital devices to design	where appropriate, taking		of digital devices to design
		subheadings].	and create a range of	accurate measurements		and create a range of
		Evaluate and edit by assessing the	programs, systems and	using standard units, using a		programs systems and
		effectiveness of their own and	given goals including	range of equipment,		content that accomplish
		others' writing and suggesting	collecting, analysing	including thermometers and		given goals including
		improvements.	evaluating and presenting	data loggers.		collecting analysing
		Proofread for spelling and	data and information.	They should learn how to use		evaluating and presenting
		punctuation errors.		new equipment, such as data		data and information
				loggers, appropriately. They		
				should collect data from their		
				own observations and		
				measurements, using notes,		
				simple tables and standard		
				units, and help to make		
				decisions about how to		
				record and analyse this data.		
Threshold	Collect	Communicate	Code	Collect	Communicate	Code
Concept	This concept involves	This concept involves using	This concept involves	This concept involves	This concept involves using	This concept involves
	developing an understanding	apps to communicate one's	developing an	developing an	apps to communicate one's	developing an
	of databases and their uses.	ideas.	understanding of	understanding of	ideas.	understanding of
	Connect	Connect	instructions, logic and	databases and their uses.	Connect	instructions, logic and
	This concept involves	This concept involves	sequences.	Connect	This concept involves	sequences.
	developing an understanding	developing an understanding	Connect	This concept involves	developing an understanding	
	of how to safely connect with	of how to safely connect with	This concept involves	developing an	of how to safely connect with	
	others.	others.	developing an	understanding of how to	others.	
			understanding of how to	safely connect with		
			safely connect with	others.		
			others			
Milestone 2	Devise and construct	Use some of the advanced	Understand online risks and	Devise and construct	Use some of the advanced	Understand online risks and
	databases using	features of applications and	the age rules for sites.	databases using	features of applications and	the age rules for sites.
	applications designed for	devices in order to	Use specified screen	applications designed	devices in order to	Use specified screen
	this numbers in arous correct	communicate ideas, work or	coordinates to control	for this nurness in	communicate ideas, work or	coordinates to control
	this purpose in areas across	messages professionally.	movement.	for this purpose in	messages professionally.	movement.
	the curriculum.		objects and create	areas across the	. ,	objects and create sequences
			sequences of changes	curriculum.		of changes.
			Create and edit sounds.			Create and edit sounds.
			Control when they are heard,			Control when they are heard,

			their volume, duration and rests. Control the shade of pens. Specify conditions to trigger events. Use IF THEN conditions to control events or objects. Create conditions for actions by sensing proximity or by waiting for a user input (such as proximity to a specified colour or a line or responses to questions). Use variables to store a value. • Use the functions define, set, change, show and hide to control the variables. • Use the Reporter operators () + () () - () () * () () / () to perform calculations.			their volume, duration and rests. Control the shade of pens. Specify conditions to trigger events. Use IF THEN conditions to control events or objects. Create conditions for actions by sensing proximity or by waiting for a user input (such as proximity to a specified colour or a line or responses to questions). Use variables to store a value. • Use the functions define, set, change, show and hide to control the variables. • Use the Reporter operators () + () () - () () * () () / () to perform calculations.
Educated for a Connected World	Self-image and Identity		Copyright and Owners	hip	Managing Online Informat	ion
Year 4/5 - Hazel	Autumn1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Data and information –	Creating media – Photo	Programming B –	Data and information –	Creating media –	Programming B –
	data logging	editing	Repetition in games	Flat-file databases	Introduction to Vector	Selection in auizzes
		0	nepetition in games			Scieccion in quizzes
	Data and information –	Creating media – Photo	Programming B –	Data and information –	Graphics	
	<u>Data and information –</u> Data logging	<u>Creating media – Photo</u> editing	<u>Programming B –</u> Repetition in games	Data and information – Flat-file databases	Graphics Creating media –	Programming B –
	Data and information – Data logging (teachcomputing.org)	<u>Creating media – Photo</u> <u>editing</u> (teachcomputing.org)	<u>Programming B –</u> <u>Repetition in games</u> (teachcomputing.org)	<u>Data and information –</u> <u>Flat-file databases</u> (teachcomputing.org)	Graphics Creating media – Introduction to vector	Programming B – Selection in guizzes
	Data and information – Data logging (teachcomputing.org) In this unit, learners will	<u>Creating media – Photo</u> <u>editing</u> (teachcomputing.org)	Programming B – Repetition in games (teachcomputing.org)	Data and information – Flat-file databases (teachcomputing.org)	Graphics <u>Creating media –</u> <u>Introduction to vector</u> graphics	<u>Programming B –</u> <u>Selection in quizzes</u> (teachcomputing.org)
	Data and information – Data logging (teachcomputing.org) In this unit, learners will consider how and why data is	<u>Creating media – Photo</u> <u>editing</u> (teachcomputing.org) Learners will develop their	<u>Programming B –</u> <u>Repetition in games</u> (teachcomputing.org) This unit explores the	Data and information – Flat-file databases (teachcomputing.org) This unit looks at how a	Graphics <u>Creating media –</u> <u>Introduction to vector</u> <u>graphics</u> (teachcomputing org)	<u>Programming B –</u> <u>Selection in quizzes</u> (teachcomputing.org)
	Data and information – Data logging (teachcomputing.org) In this unit, learners will consider how and why data is collected over time. Learners	<u>Creating media – Photo</u> <u>editing</u> (<u>teachcomputing.org</u>) Learners will develop their understanding of how digital	Programming B – Repetition in games (teachcomputing.org) This unit explores the concept of repetition in	Data and information – Flat-file databases (teachcomputing.org) This unit looks at how a flat-file database can be	Graphics <u>Creating media –</u> <u>Introduction to vector</u> <u>graphics</u> (teachcomputing.org)	<u>Programming B –</u> <u>Selection in quizzes</u> (teachcomputing.org) This unit assumes that
	Data and information – Data logging (teachcomputing.org) In this unit, learners will consider how and why data is collected over time. Learners will consider the senses that	<u>Creating media – Photo</u> <u>editing</u> (<u>teachcomputing.org</u>) Learners will develop their understanding of how digital images can be changed and	<u>Programming B –</u> <u>Repetition in games</u> (teachcomputing.org) This unit explores the concept of repetition in programming using the	Data and information – Flat-file databases (teachcomputing.org) This unit looks at how a flat-file database can be used to organise data in	Graphics <u>Creating media –</u> <u>Introduction to vector</u> <u>graphics</u> (teachcomputing.org)	Programming B – Selection in quizzes (teachcomputing.org) This unit assumes that learners will have prior
	Data and information – Data logging (teachcomputing.org) In this unit, learners will consider how and why data is collected over time. Learners will consider the senses that humans use to experience the	Creating media – Photo editing (teachcomputing.org) Learners will develop their understanding of how digital images can be changed and edited, and how they can then	Programming B – Repetition in games (teachcomputing.org) This unit explores the concept of repetition in programming using the Scratch environment. It	Data and information – Flat-file databases (teachcomputing.org) This unit looks at how a flat-file database can be used to organise data in records. Learners will use	Graphics <u>Creating media –</u> <u>Introduction to vector</u> <u>graphics</u> (teachcomputing.org) In this unit, learners start to create vector drawings. They	Programming B – Selection in quizzes (teachcomputing.org) This unit assumes that learners will have prior experience of
	Data and information – Data logging (teachcomputing.org) In this unit, learners will consider how and why data is collected over time. Learners will consider the senses that humans use to experience the environment and how	Creating media – Photo editing (teachcomputing.org) Learners will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They	Programming B – Repetition in games (teachcomputing.org) This unit explores the concept of repetition in programming using the Scratch environment. It begins with a Scratch	Data and information – Flat-file databases (teachcomputing.org) This unit looks at how a flat-file database can be used to organise data in records. Learners will use tools within a database to	Graphics <u>Creating media –</u> <u>Introduction to vector</u> <u>graphics</u> (teachcomputing.org) In this unit, learners start to create vector drawings. They learn how to use different	Programming B – Selection in quizzes (teachcomputing.org) This unit assumes that learners will have prior experience of programming using block-
	Data and information – Data logging (teachcomputing.org) In this unit, learners will consider how and why data is collected over time. Learners will consider the senses that humans use to experience the environment and how computers can use special	Creating media – Photo editing (teachcomputing.org) Learners will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They will consider the impact that	Programming B – Repetition in games (teachcomputing.org) This unit explores the concept of repetition in programming using the Scratch environment. It begins with a Scratch activity similar to that	Data and information – Flat-file databases (teachcomputing.org) This unit looks at how a flat-file database can be used to organise data in records. Learners will use tools within a database to order and answer	Graphics <u>Creating media –</u> <u>Introduction to vector</u> <u>graphics</u> (teachcomputing.org) In this unit, learners start to create vector drawings. They learn how to use different drawing tools to help them	Programming B – Selection in quizzes (teachcomputing.org) This unit assumes that learners will have prior experience of programming using block- based construction (e.g.
	Data and information – Data logging (teachcomputing.org) In this unit, learners will consider how and why data is collected over time. Learners will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to	Creating media – Photo editing (teachcomputing.org) Learners will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They will consider the impact that editing images can have, and	Programming B – Repetition in games (teachcomputing.org) This unit explores the concept of repetition in programming using the Scratch environment. It begins with a Scratch activity similar to that carried out in Logo in	Data and information – Flat-file databases (teachcomputing.org) This unit looks at how a flat-file database can be used to organise data in records. Learners will use tools within a database to order and answer questions about data.	Graphics <u>Creating media –</u> <u>Introduction to vector</u> <u>graphics</u> (teachcomputing.org) In this unit, learners start to create vector drawings. They learn how to use different drawing tools to help them create images. Learners	Programming B – Selection in quizzes (teachcomputing.org) This unit assumes that learners will have prior experience of programming using block- based construction (e.g. Scratch), understand the
	Data and information – Data logging (teachcomputing.org) In this unit, learners will consider how and why data is collected over time. Learners will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment.	Creating media – Photo editing (teachcomputing.org) Learners will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They will consider the impact that editing images can have, and evaluate the effectiveness of	Programming B – Repetition in games (teachcomputing.org) This unit explores the concept of repetition in programming using the Scratch environment. It begins with a Scratch activity similar to that carried out in Logo in Programming unit A,	Data and information – Flat-file databases (teachcomputing.org) This unit looks at how a flat-file database can be used to organise data in records. Learners will use tools within a database to order and answer questions about data. They will create graphs	Graphics <u>Creating media –</u> <u>Introduction to vector</u> <u>graphics</u> (teachcomputing.org) In this unit, learners start to create vector drawings. They learn how to use different drawing tools to help them create images. Learners recognise that images in	Programming B – Selection in quizzes (teachcomputing.org) This unit assumes that learners will have prior experience of programming using block- based construction (e.g. Scratch), understand the concepts of 'sequence'
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	Data and information – Data logging (teachcomputing.org) In this unit, learners will consider how and why data is collected over time. Learners will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. Learners will collect data as well as access data captured over long periods of time. They	Creating media – Photo editing (teachcomputing.org) Learners will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They will consider the impact that editing images can have, and evaluate the effectiveness of their choices. Throughout this unit, there	Programming B – Repetition in games (teachcomputing.org) This unit explores the concept of repetition in programming using the Scratch environment. It begins with a Scratch activity similar to that carried out in Logo in Programming unit A, where learners can discover similarities between two	Data and information – Flat-file databases (teachcomputing.org) This unit looks at how a flat-file database can be used to organise data in records. Learners will use tools within a database to order and answer questions about data. They will create graphs and charts from their data to help solve problems. They will also use a real-	Graphics <u>Creating media –</u> <u>Introduction to vector</u> <u>graphics</u> <u>(teachcomputing.org)</u> In this unit, learners start to create vector drawings. They learn how to use different drawing tools to help them create images. Learners recognise that images in vector drawings are created using shapes and lines, and each individual element in the	Programming B – Selection in quizzes (teachcomputing.org) This unit assumes that learners will have prior experience of programming using block- based construction (e.g. Scratch), understand the concepts of 'sequence' and 'repetition', and have some experience of using 'selection'. Ideally,
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	Data and information – Data logging (teachcomputing.org) In this unit, learners will consider how and why data is collected over time. Learners will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. Learners will collect data as well as access data captured over long periods of time. They will look at data points, data sets, and logging intervals. Learners will spend time using a computer to review and analyse data. Towards the end	Creating media – Photo editing (teachcomputing.org) Learners will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They will consider the impact that editing images can have, and evaluate the effectiveness of their choices. Throughout this unit, there are opportunities to model with photo editing applications or to demonstrate a concept using the included screen	Programming B – Repetition in games (teachcomputing.org) This unit explores the concept of repetition in programming using the Scratch environment. It begins with a Scratch activity similar to that carried out in Logo in Programming unit A, where learners can discover similarities between two environments. Learners look at the difference between count-controlled and infinite loops, and use their knowledge to	Data and information – Flat-file databases (teachcomputing.org) This unit looks at how a flat-file database can be used to organise data in records. Learners will use tools within a database to order and answer questions about data. They will create graphs and charts from their data to help solve problems. They will also use a real- life database to answer a question, and present their work to others.	Graphics <u>Creating media –</u> <u>Introduction to vector</u> <u>graphics</u> (teachcomputing.org) In this unit, learners start to create vector drawings. They learn how to use different drawing tools to help them create images. Learners recognise that images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. Learners layer their objects and begin grouping and duplicating them to support	Programming B – Selection in quizzes (teachcomputing.org) This unit assumes that learners will have prior experience of programming using block- based construction (e.g. Scratch), understand the concepts of 'sequence' and 'repetition', and have some experience of using 'selection'. Ideally, learners will have completed 'Programming A – Selection in physical computing' before

	questions and then use data loggers to automatically collect the data needed to answer those questions.	more beneficial to model the concepts and skills to the learners, which allows for easier questioning and understanding. We recommend that you use the screen recordings to see what needs to be modelled, but give a live demonstration within the lesson. However, the videos are provided on the slides if you wish to use them instead.	animations and games using repetition. Their final project is to design and create a game which uses repetition, applying stages of programming design throughout.			with the required knowledge of 'selection'.
Progression	This unit progresses learners' knowledge and understanding of data and how it can be collected over time to answer questions. Specifically, it builds on the concept of answering questions with data which is first introduced in the KS1 data and information units. The unit also introduces the idea of automatic data collection. Learners are also introduced to data in tables and graphs, knowledge they will build on in the Year 5 unit (flat file databases) and the Year 6 unit (spreadsheets).	This unit progresses students' knowledge and understanding of digital photography and using digital devices to create media. Following this unit, learners will further develop their image editing skills in Year 5 – Vector drawing.	This unit assumes that learners will have some prior experience of programming. The KS1 NCCE units cover floor robots and ScratchJr, and Scratch is introduced in the Year 3 programming units. However, experience of other languages or environments may also be useful.	This unit looks at how a flat-file database can be used to organise data in records. Learners will use tools within a database to order and answer questions about data. They will create graphs and charts from their data to help solve problems. They will also use a real-life database to answer a question, and present their work to others.	This unit progresses learners' knowledge and understanding of digital painting and has some links to the Year 3 'Creating media – Desktop publishing' unit, in which learners used digital images. In this Year 5 unit, learners create images that could be used in desktop publishing documents.	This unit assumes that learners will have prior experience of programming using block-based construction (e.g. Scratch), understand the concepts of 'sequence' and 'repetition', and have some experience of using 'selection'. Ideally, learners will have completed 'Programming A – Selection in physical computing' before undertaking this unit, as this will provide them with the required knowledge of 'selection'.
National Curriculum Links	Use sequence, selection, and repetition in	Select, use, and combine a variety of software	Design, write, and debug programs that	Use search technologies	Select, use, and combine a variety of software	design, write and debug programs that

programs; work with	(including internet	accomplish specific	effectively,	(including internet	accomplish specific
variables and various	services) on a range of	goals, including	appreciate how	services) on a range of	goals, including
forms of input and	digital devices to design	controlling or	results are selected	digital devices to design	controlling or
output	and create a range of	simulating physical	and ranked, and be	and create a range of	simulating physical
Select, use, and combine	programs, systems, and	systems; solve	discerning in	programs, systems, and	systems; solve
a variety of software	content that accomplish	problems by	evaluating digital	content that accomplish	problems by
(including internet	given goals, including	decomposing them	content	given goals, including	decomposing them
services) on a range of	collecting, analysing,	into smaller parts	Select, use, and	collecting, analysing,	into smaller parts
digital devices to design	evaluating, and	Use sequence,	combine a variety of	evaluating, and	use sequence,
and create a range of	presenting data and	selection, and	software (including	presenting data and	selection, and
programs, systems, and	information	repetition in	internet services) on	information.	repetition in
content that accomplish	Use technology safely,	programs; work with	a range of digital		programs; work with
given goals, including	respectfully, and	variables and various	devices to design and		variables and various
collecting, analysing,	responsibly; recognise	forms of input and	create a range of		forms of input and
evaluating, and	acceptable/unacceptable	output	programs, systems,		output
presenting data and	behaviour; identify a	Use logical reasoning	and content that		use logical reasoning
information	range of ways to report	to explain how some	accomplish given		to explain how some
	concerns about content	simple algorithms	goals, including		simple algorithms
Science – Lower key	and contact	work, and to detect	collecting, analysing,		work and to detect
stage 2/Year 4		and correct errors in	evaluating, and		and correct errors in
waking systematic and		algorithms and	presenting data and		algorithms and
		programs	information		programs
where appropriate,		Select, use and			select, use and
taking accurate		combine a variety of			combine a variety of
measurements using a		software (including			software (including
standard units, using a		internet services) on			internet services) on
including thermometers		a range of digital			a range of digital
including thermometers		devices to design			devices to design and
They should leave how to		and create a range of			create a range of
They should learn now to		programs, systems			programs, systems
use new equipment, such		and content that			and content that
as uata luggers,		accomplish given			accomplish given
appropriately. They should collect data from		goals, including			goals, including
should collect data from					

	their own observations		collecting, analysing,			collecting, analysing,
	and measurements, using		evaluating and			evaluating and
	notes, simple tables and		presenting data and			presenting data and
	standard units, and help		information			information
	to make decisions about					
	how to record and					
	analyse this data					
	analyse this data.					
Threshold Concept	Collect This concept involves developing an understanding of databases and their uses. Connect This concept involves developing an understanding of how to safely connect with others.	Communicate This concept involves using apps to communicate one's ideas. Connect This concept involves developing an understanding of how to safely connect with others.	Code This concept involves developing an understanding of instructions, logic and sequences. Connect This concept involves developing an understanding of how to safely connect with others	Collect This concept involves developing an understanding of databases and their uses. Connect This concept involves developing an understanding of how to safely connect with others.	Communicate This concept involves using apps to communicate one's ideas. Connect This concept involves developing an understanding of how to safely connect with others.	Code This concept involves developing an understanding of instructions, logic and sequences.
Milestones 2/3	Devise and construct databases using applications designed for this purpose in areas across the curriculum.	Use some of the advanced features of applications and devices in order to communicate ideas, work or messages professionally.	Understand online risks and the age rules for sites. Use specified screen coordinates to control movement. Set the appearance of objects and create sequences of changes. Create and edit sounds. Control when they are heard, their volume, duration and rests. Control the shade of pens. Specify conditions to trigger events. Use IF THEN conditions to control events or objects. Create conditions for actions by sensing proximity or by waiting for a user input (such as proximity to a specified colour or a line or responses to questions). Use variables to store a value. • Use the functions define set change show	Select appropriate applications to devise, construct and manipulate data and present it in an effective and professional manner	Choose the most suitable applications and devices for the purposes of .communication. Use many of the advanced features in order to create high quality, professional or efficient communications.	Set IF conditions for movements. Specify types of rotation giving the number of degrees. Change the position of objects between screen layers (send to back, bring to front). Upload sounds from a file and edit them. Add effects such as fade in and out and control their implementation. Combine the use of pens with movement to create interesting effects. Set events to control other events by 'broadcasting' information as a trigger. Use IF THEN ELSE conditions to control events or objects. Use a range of sensing tools (including proximity, user inputs, loudness and mouse position) to control events or actions

			and hide to control the			Use lists to create a set of
			variables.			variables.
			Use the Reporter operators			Use the Boolean operators ()
			() + () () - ()			< () () = () () > () () and() ()or()
			() * () () / () to perform			(()) = (()) =
			calculations			Use the Reporter operators ()
			calculations.			() () () () () () () () () () () () () (
						+ () () - () () () () () () () ()
						Denders () to () loin () ()
						Random () to () Join () ()
						Letter () of () Length of () ()
						Mod () This reports the
						remainder after a division
						calculation Round () () of ().
Year 5/6	Autumn1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Chestnut						
Chestnat						

Data and information –	Creating media –	Programming B – Selection in	Data and information -	Creating media – 3D	Programming B -
Flat-file databases	Introduction to vector	quizzes	Introduction to	Modelling	Sensing movement
Data and information – Flat-file databases (teachcomputing.org) This unit looks at how a flat-file database can be used to organise data in records. Learners will use tools within a database to order and answer questions about data. They will create graphs and charts from their data to help solve problems. They will also use a real- life database to answer a question, and present their work to others.	graphics Creating media – Introduction to vector graphics (teachcomputing.org) In this unit, learners start to create vector drawings. They learn how to use different drawing tools to help them create images. Learners recognise that images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. Learners layer their objects and begin grouping and duplicating them to support the creation of more complex pieces of work.	Programming B – Selection in quizzes (teachcomputing.org) Learners will develop their knowledge of 'selection' by revisiting how 'conditions' can be used in programming, and then learning how the 'if then else' structure can be used to select different outcomes depending on whether a condition is 'true' or 'false'. They represent this understanding in algorithms, and then by constructing programs in the Scratch programming environment. They learn how to write programs that ask questions and use selection to control the outcomes based on the answers given. They use this knowledge to design a quiz in response to a given task and implement it as a program. To conclude the unit, learners evaluate their program by identifying how it meets the requirements of the task, the ways they have improved it, and further ways it could be improved.	Spreadsheets Data and information - Introduction to Spreadsheets (teachcomputing.org) This unit introduces the learners to spreadsheets. They will be supported in organising data into columns and rows to create their own data set. Learners will be taught the importance of formatting data to support calculations, while also being introduced to formulas and will begin to understand how they can be used to produce calculated data. Learners will be taught how to apply formulas that include a range of cells, and apply formulas to multiple cells by duplicating them. Learners will use spreadsheets to plan an event and answer questions. Finally, learners will create charts, and evaluate their results in comparison to questions asked.	Creating media – 3D Modelling (teachcomputing.org) Learners will develop their knowledge and understanding of using a computer to produce 3D models. Learners will initially familiarise themselves with working in a 3D space, moving, resizing, and duplicating objects. They will then create hollow objects using placeholders and combine multiple objects to create a model of a desk tidy. Finally, learners will examine the benefits of grouping and ungrouping 3D objects, then go on to plan, develop, and evaluate their own 3D model of a building. For this sequence of lessons, learners will be using Tinkercad (https://www.tinkercad.com), a web-based 3D modelling application. Learners will need accounts to save their work and access the resources. We recommend signing up for a teacher account at https://www.tinkercad.com/join, which enables learner accounts to be created and the website accessed with a class code. For guidance on setting up your class, please visit https://www.tinkercad.com/sonline safety policy is considered when creating accounts.	Programming B - Sensing movement (teachcomputing.org) This unit is the final KS2 programming unit and brings together elements of all the four programming constructs: sequence from Year 3, repetition from Year 4, selection from Year 5, and variables (introduced in Year 6 - 'Programming A'. It offers pupils the opportunity to use all of these constructs in a different, but still familiar environment, while also utilising a physical device — the micro:bit. The unit begins with a simple program for pupils to build in and test within the new programming environment, before transferring it to their micro:bit. Pupils then take on three new projects in Lessons 2, 3, and 4, with each lesson adding more depth. Design features prominently in this unit. A design template is introduced in Lesson 3, initially scaffolded to give pupils the opportunity to create code from a given design. In Lesson 4 that scaffolding is gradually reduced, then in Lesson 5, pupils create their own design, using the same template. In the final lesson, pupils will apply their knowledge of the programming constructs and use their design to create their own micro:bit-based step counter.

						There are two Year 6 programming units: Programming A – Variables in games Programming B – Sensing This is unit B, which should be delivered after unit A.
Progression	This unit progresses learners' knowledge and understanding of why and how information might be stored in a database, and looks at how tools within a database can help us to answer questions about our data. It moves on to demonstrate how a database can help us display data visually, and how real-life databases can be used to help us solve problems. Finally, the learners create a presentation showing understanding and application of all the tools used within the unit.	This unit progresses learners' knowledge and understanding of digital painting and has some links to the Year 3 'Creating media – Desktop publishing' unit, in which learners used digital images. In this Year 5 unit, learners create images that could be used in desktop publishing documents.	This unit assumes that learners will have prior experience of programming using block-based construction (e.g. Scratch), understand the concepts of 'sequence' and 'repetition', and have some experience of using 'selection'. Ideally, learners will have completed 'Programming A – Selection in physical computing' before undertaking this unit, as this will provide them with the required knowledge of 'selection'.	This unit progresses students' knowledge and understanding of data, and teaches them how to organise and modify data within spreadsheets. Specifically, learners will have experienced data in tables and charts in the Y4 data logging and Y5 branching database units.	This unit progresses students' knowledge and understanding of creating 3D graphics using a computer. Prior to undertaking this unit, learners should have worked with 2D graphics applications.	This unit presumes that pupils are already confident in their understanding of sequence, repetition and selection independently within programming. If pupils are not yet ready for this, you may wish to revisit earlier programming units where these constructs are introduced.
National	Use search technologies	Select, use, and combine a variety	Design, write, and debug	Select, use, and combine a	Select, use, and combine a variety	Design, write, and debug
Curriculum Links	effectively, appreciate how results are selected and ranked, and be	of software (including internet	programs that accomplish	variety of software (including	of software (including internet	programs that accomplish
	discerning in evaluating digital	devices to design and create a	controlling or simulating	of digital devices to design	devices to design and create a	controlling or simulating
	content.	range of programs, systems, and	physical systems; solve	and create a range of	range of programs, systems, and	physical systems; solve
	Select, use, and combine a variety	content that accomplish given	problems by decomposing	programs, systems, and	content that accomplish given	problems by decomposing
	of software (including internet	goals, including collecting,	them into smaller parts.	content that accomplish	goals, including collecting,	them into smaller parts
	services) on a range of digital	analysing, evaluating, and	Use sequence, selection, and	given goals, including	analysing, evaluating, and	Use sequence, selection, and
	devices to design and create a	presenting data and information.	repetition in programs; work	collecting, analysing,	presenting data and information	repetition in programs; work
	range of programs, systems, and		with variables and various	evaluating, and presenting	Use technology safely,	with variables and various
	content that accomplish given		forms of input and output.	data and information	respectfully, and responsibly;	forms of input and output
	goals, including collecting,		Use logical reasoning to		recognise	Use logical reasoning to
	analysing, evaluating, and		explain how some simple	National curriculum maths	acceptable/unacceptable	explain how some simple
	presenting data and information.		algorithms work, and to	<u>IIIIN5</u>	behaviour; identify a range of	algorithms work and to
			detect and correct errors in	Number – addition,	ways to report concerns about	detect and correct errors in
			algorithms and programs.	subtraction, multiplication,	content and contact	algorithms and programs
			Select, use and combine a	and division:	Art and design – KS2	Select, use and combine a
			interpet services) on a range	Solve problems involving	To improve their mastery of art	internet convices) on a range
			of digital devices to design	addition, subtraction,	and design techniques, including	of digital devices to design
			and create a range of	multiplication, and division	drawing, painting, and sculpture	and create a range of
			programs, systems and	Statistics:	with a range of materials	programs, systems and

			content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	Interpret and construct pie charts and line graphs, and use these to solve problems Calculate and interpret the mean as an average	Design and technology – KS2 Generate, develop, model, and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design Mathematics – KS2 (Y6) Recognise, describe, and build simple 3D shapes, including making nets	content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
Threshold Concept	Collect This concept involves developing an understanding of databases and their uses. Connect This concept involves developing an understanding of how to safely connect with others.	Communicate This concept involves using apps to communicate one's ideas. Connect This concept involves developing an understanding of how to safely connect with others.	Code This concept involves developing an understanding of instructions, logic and sequences.	Collect This concept involves developing an understanding of databases and their uses. Connect This concept involves developing an understanding of how to safely connect with others.	Communicate This concept involves using apps to communicate one's ideas. Connect This concept involves developing an understanding of how to safely connect with others.	Code This concept involves developing an understanding of instructions, logic and sequences.
Milestone 3	Select appropriate applications to devise, construct and manipulate data and present it in an effective and professional manner	Choose the most suitable applications and devices for the purposes of .communication. Use many of the advanced features in order to create high quality, professional or efficient communications.	Set IF conditions for movements. Specify types of rotation giving the number of degrees. Change the position of objects between screen layers (send to back, bring to front). Upload sounds from a file and edit them. Add effects such as fade in and out and control their implementation. Combine the use of pens with movement to create interesting effects. Set events to control other events by 'broadcasting' information as a trigger. Use IF THEN ELSE conditions to control events or objects.	Select appropriate applications to devise, construct and manipulate data and present it in an effective and professional manner	Choose the most suitable applications and devices for the purposes of .communication. Use many of the advanced features in order to create high quality, professional or efficient communications.	Set IF conditions for movements. Specify types of rotation giving the number of degrees. Change the position of objects between screen layers (send to back, bring to front). Upload sounds from a file and edit them. Add effects such as fade in and out and control their implementation. Combine the use of pens with movement to create interesting effects. Set events to control other events by 'broadcasting' information as a trigger. Use IF THEN ELSE conditions to control events or objects.

		Use a range of sensing tools		Use a range of sensing tools
		(including proximity, user		(including proximity, user
		inputs, loudness and mouse		inputs, loudness and mouse
		position) to control events or		position) to control events or
		actions		actions
		Lise lists to create a set of		Lico lists to croate a set of
				Use lists to create a set of
		variables.		Variables.
		Use the Boolean operators ()		Use the Boolean operators ()
		< () () = () () > () ()and() ()or()		< () () = () () > () ()and() ()or()
		Not() to define conditions.		Not() to define conditions.
		Use the Reporter operators		Use the Reporter operators ()
		() + () () - () () * () () / () to		+()()-()()*()()/() to
		nerform calculations Pick		nerform calculations Pick
		Dandom () to () loin () ()		Pandam () to () lain () ()
		Letter () of () Length of () ()		Letter () of () Length of () ()
		Mod () This reports the		Mod () This reports the
		remainder after a division		remainder after a division
		calculation Round () () of ().		calculation Round () () of ().
		0.0 0		000

Education for a	Managing Information			Privacy and Security	Managing Information	
Connected World	Online				Online	
Year 6 Sycamore						
-	Computing systems and	Creating media – Web	Programming A –	Data and information -	Creating media – 3D	Programming B -
	networks - Communication	page creation	Variables in games	Introduction to	Modelling	Sensing movement
	and collaboration			Spreadsheets		
	Computing systems and networks -	Creating media – Web page	Programming A – Variables		<u>Creating media – 3D Modelling</u>	Programming B - Sensing
	<u>Communication and collaboration</u> (teachcomputing org)	creation (teachcomputing.org)	in games (teachcomputing org)	Data and information - Introduction to Spreadsheets	(teacheoinpating.org)	movement
			(teachcomputing.org)	(teachcomputing.org)	Learners will develop their	(teachcomputing.org)
	In this unit learners explore how	Learners will be introduced to creating websites for a chosen	This unit explores the		knowledge and understanding of	This unit is the final
	data is transferred over the	purpose. Learners identify what	concept of variables in	This unit introduces the learners to spreadsheets	models. Learners will initially	KS2 programming unit and
	addressing, before they move on	makes a good web page and use	programming through games	They will be supported in	familiarise themselves with	brings together elements of
	to the makeup and structure of	this information to design and	in Scratch. First, learners find	organising data into columns	working in a 3D space, moving,	all the four programming
	data packets. Learners then look at	Google Sites. Throughout the	relate them to real-world	and rows to create their own	They will then create hollow	Year 3, repetition from Year
	communication and collaboration;	process, learners pay specific	examples of values that can	taught the importance of	objects using placeholders and	4, selection from Year 5, and
	they complete shared projects	attention to copyright and fair use	be set and changed. Then	formatting data to support	combine multiple objects to create	variables (introduced in Year $6 - Programming A' + toffers$
	online and evaluate different	site, and navigation paths.	simulation of a scoreboard.	calculations, while also being	learners will examine the benefits	pupils the opportunity to use
	Finally, they learn how to		In Lessons 2, 3, and 5, which	will begin to understand how	of grouping and ungrouping 3D	all of these constructs in a
	communicate responsibly by	It is recommended that learners	follow the Use-Modify-	they can be used to produce	objects, then go on to plan,	different, but still familiar
	considering what should and	for this unit of work. The unit has	experiment with variables in	calculated data. Learners will	develop, and evaluate their own	utilising a physical device —
	should not be shared on the	been based on the use of Google	an existing project, then	formulas that include a range	SD model of a building.	the micro:bit. The unit begins
		Sites, which is free to use with any	modify them, before they	of cells, and apply formulas	For this sequence of lessons,	with a simple program for
		Google account. If your school	create their own project. In	to multiple cells by	learners will be using Tinkercad	pupils to build in and test within the new programming
		for Education, your Google	design. Finally, in Lesson 6,	duplicating them. Learners will use spreadsheets to plan	web-based 3D modelling	environment, before
		administrator can create accounts	learners apply their	an event and answer	application. Learners will need	transferring it to their
		for pupils and also ensure that the	knowledge of variables and	questions. Finally, learners	accounts to save their work and	micro:bit. Pupils then take on three new projects in Lessons
		you don't have a school Google	games in Scratch.	will create charts, and	recommend signing up for a	2, 3, and 4, with each lesson
		Workspace account, your school	-	comparison to questions	teacher account at	adding more depth.
		may choose to set one up or you		asked.	https://www.tinkercad.com/join,	Decian features prominently
		Google accounts for your learners			which enables learner accounts to be created and the website	in this unit. A design
		to use. Whichever option you			accessed with a class code. For	template is introduced in
		choose, it should be in line with			guidance on setting up your class,	Lesson 3, initially scaffolded
		your school's policies.			please visit	to give pupils the opportunity to create code from a given
					Please ensure your school's online	design. In Lesson 4 that
					safety policy is considered when	scaffolding is gradually
					creating accounts.	reduced, then in Lesson 5, numils create their own
						design, using the same
						template. In the final lesson,
						pupils will apply their
						programming constructs and
						use their design to create

						their own micro:bit-based step counter. There are two Year 6 programming units: Programming A – Variables in games Programming B – Sensing This is unit B, which should be delivered after unit A.
Progression	This unit progresses learners' knowledge and understanding of computing systems and online collaborative working.	This unit progresses students' knowledge and understanding of the following: digital writing, digital painting, desktop publishing, digital photography, photo editing, and vector drawing.	This unit assumes that learners have some prior experience of programming in Scratch. Specifically, they should be familiar with the programming constructs of sequence, repetition, and selection. These constructs are covered in the Year 3, 4, and 5 National Centre for Computing Education programming units respectively. Each year group includes at least one unit that focuses on Scratch.	This unit progresses students' knowledge and understanding of data, and teaches them how to organise and modify data within spreadsheets. Specifically, learners will have experienced data in tables and charts in the Y4 data logging and Y5 branching database units.	This unit progresses students' knowledge and understanding of creating 3D graphics using a computer. Prior to undertaking this unit, learners should have worked with 2D graphics applications.	This unit presumes that pupils are already confident in their understanding of sequence, repetition and selection independently within programming. If pupils are not yet ready for this, you may wish to revisit earlier programming units where these constructs are introduced.
National Curriculum Links	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, 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	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.	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 Select, use and combine a variety of software (including internet services) on a range	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 <u>National curriculum maths</u> <u>links</u> <u>Number – addition, subtraction, multiplication, and division:</u> Solve problems involving addition, subtraction,	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 Art and design – KS2 To improve their mastery of art	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 Select, use and combine a variety of software (including internet services) on a range

	to report concerns about content and contact.	English links Writing composition: Identifying the audience for and purpose of the writing, selecting the appropriate form, and using other similar writing as models for their own.	and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	Statistics: Interpret and construct pie charts and line graphs, and use these to solve problems Calculate and interpret the mean as an average	drawing, painting, and sculpture with a range of materials Design and technology – KS2 Generate, develop, model, and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design Mathematics – KS2 (Y6) Recognise, describe, and build simple 3D shapes, including making nets	and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
Threshold Concept	Communicate This concept involves using apps to communicate one's ideas. Connect This concept involves developing an understanding of how to safely connect with others.	Communicate This concept involves using apps to communicate one's ideas.	Code This concept involves developing an understanding of instructions, logic and sequences. Connect This concept involves developing an understanding of how to safely connect with others	Collect This concept involves developing an understanding of databases and their uses. Connect This concept involves developing an understanding of how to safely connect with others.	Communicate This concept involves using apps to communicate one's ideas. Connect This concept involves developing an understanding of how to safely connect with others.	Code This concept involves developing an understanding of instructions, logic and sequences.
Milestone 3	Choose the most suitable applications and devices for the purposes of communication. Use many of the advanced features in order to create high quality, professional or efficient communications. Collaborate with others online on sites approved and moderated by teachers. Give examples of the risks of online communities and demonstrate knowledge of how to minimise risk and report problems. Understand and demonstrate knowledge that it is illegal to download copyrighted material, including music or games, without express written permission, from the copyright holder. Understand the effect of	Choose the most suitable applications and devices for the purposes of communication. • Use many of the advanced features in order to create high quality, professional or efficient communications.	Collaborate with others online on sites approved and moderated by teachers. Give examples of the risks of online communities and demonstrate knowledge of how to minimise risk and report problems. Understand and demonstrate knowledge that it is illegal to download copyrighted material, including music or games, without express written permission, from the copyright holder. Understand the effect of online comments and show responsibility and sensitivity when online.	Select appropriate applications to devise, construct and manipulate data and present it in an effective and professional manner	Choose the most suitable applications and devices for the purposes of .communication. Use many of the advanced features in order to create high quality, professional or efficient communications.	Set IF conditions for movements. Specify types of rotation giving the number of degrees. Change the position of objects between screen layers (send to back, bring to front). Upload sounds from a file and edit them. Add effects such as fade in and out and control their implementation. Combine the use of pens with movement to create interesting effects. Set events to control other events by 'broadcasting' information as a trigger.

online comments and show	Understand how simple		LISO IE THEN ELSE conditions
commerciality and show	onderstand now simple		to control events or objects
	networks are set up and		to control events of objects.
Unifie.	useu.		Use a range of sensing tools
Understand now simple networks	Set IF conditions for		(including proximity, user
are set up and used.	movements. specify types of		inputs, loudness and mouse
	rotation giving the number		position) to control events or
	of degrees.		actions.
	Change the position of		Use lists to create a set of
	objects between screen		variables.
	layers (send to back, bring to		Use the Boolean operators ()
	front).		< () () = () () > () ()and() ()or()
	Upload sounds from a file		Not() to define conditions.
	and edit them. Add effects		Use the Reporter operators ()
	such as fade in and out and		+ () () - () () * () () / () to
	control their		perform calculations. Pick
	implementation.		Random () to () Join () ()
	Combine the use of pens		Letter () of () Length of () ()
	with movement to create		Mod () This reports the
	interesting effects.		remainder after a division
	Set events to control other		calculation Round () () of ().
	events by 'broadcasting'		
	information as a trigger.		
	Use IF THEN ELSE conditions		
	to control events or objects.		
	Use a range of sensing tools		
	(including proximity, user		
	inputs, loudness and mouse		
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