

## <u>Progression in Computational Knowledge, Concepts and Skills</u>



Progression in Computational Knowledge, Concepts and Skills	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Computer	Children are	Understand	Understand	Design, write	Design, write	Design, write	Design, write	Design, use and
Science	introduced to	what	what	and debug	and debug	and debug	and debug	evaluate
	different	algorithms	algorithms	programs that	programs that	programs that	programs that	computational
	forms of	are; how	are; how	accomplish	accomplish	accomplish	accomplish	abstractions
	technology	they are	they are	specific goals,	specific goals,	specific goals,	specific goals,	that model the
	such as	implemented	implemented	including	including	including	including	state and
	computers,	as programs	as programs	controlling or	controlling or	controlling or	controlling or	behaviour of
	ipads, laptops,	on devices.	on digital	simulating	simulating	simulating	simulating	real-world
	beebots etc.		devices; and	physical	physical	physical	physical	problems and
	They are also	Create and	that	systems; solve	systems; solve	systems; solve	systems; solve	physical
	introduced to	debug simple	programs	problems by	problems by	problems by	problems by	systems.
	algorithms in a	programs.	execute by	decomposing	decomposing	decomposing	decomposing	
	very basic		following	them into	them into	them into	them into	Understand
	form, i.e.	Use logical	precise and	smaller parts.	smaller parts.	smaller parts.	smaller parts.	several key
	following	reasoning to	unambiguous					algorithms that
	instructions,	predict the	instructions.	Use sequence,	Use sequence,	Use sequence,	Use sequence,	reflect
	understanding	behaviour of	_	selection and	selection and	selection and	selection and	computational
	and creating	simple	Create and	repetition in	repetition in	repetition in	repetition in	thinking [for
	instructions	programs.	debug simple	programs;	programs;	programs;	programs;	example, ones
	for their		programs.	work with	work with	work with	work with	for sorting and
	friends,			variables and	variables and	variables and	variables and	searching]; use
	understanding		Use logical	various forms	various forms	various forms	various forms	logical reasoning
	directions.		reasoning to					to compare the

These are the	predict the	of input and	of input and	of input and	of input and	utility of
basic first	behaviour of	output.	output.	output.	output.	alternative
steps towards	simple		'	'	'	algorithms for
using	programs.	Use logical	Use logical	Use logical	Use logical	the same
algorithms in		reasoning to	reasoning to	reasoning to	reasoning to	problem.
coding.		explain how	explain how	explain how	explain how	F
		some simple	some simple	some simple	some simple	Use 2 or more
		algorithms	algorithms	algorithms	algorithms	programming
		work and to	work and to	work and to	work and to	languages, at
		detect and	detect and	detect and	detect and	least one of
		correct errors	correct errors	correct errors	correct errors	which is textual,
		in algorithms	in algorithms	in algorithms	in algorithms	to solve a
		and programs.	and programs.	and programs.	and programs.	variety of
						computational
		Understand	Understand	Understand	Understand	problems; make
		computer	computer	computer	computer	appropriate use
		networks,	networks,	networks,	networks,	of data
		including the	including the	including the	including the	structures [for
		internet; how	internet; how	internet; how	internet; how	example, lists,
		they can	they can	they can	they can	tables or
		provide	provide	provide	provide	arrays]; design
		multiple	multiple	multiple	multiple	and develop
		services, such	services, such	services, such	services, such	modular
		as the World	as the World	as the World	as the World	programs that
		Wide Web,	Wide Web,	Wide Web,	Wide Web,	use procedures
		and the	and the	and the	and the	or functions
		opportunities	opportunities	opportunities	opportunities	
		they offer for	they offer for	they offer for	they offer for	Understand
		communication	communication	communication	communication	simple Boolean
		and	and	and	and	logic [for
		collaboration.	collaboration.	collaboration.	collaboration.	example, AND,
						OR and NOT]
						and some of its

Information Technology	Children are introduced to technological	Use technology purposefully	Use technology purposefully	Use search technologies effectively,	Use search technologies effectively,	Use search technologies effectively,	Use search technologies effectively,	uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal].  Understand the hardware and software
	hardware and	to create,	to create,	appreciate	appreciate	appreciate	appreciate	components that
	software and will talk about	organise, store,	organise, store,	how results are selected	how results are selected	how results are selected	how results are selected	make up computer
	its purpose.	manipulate	manipulate	and ranked.	and ranked,	and ranked.	and ranked.	systems, and
	, , , o pa, poss.	and retrieve	and retrieve	and be	and be	and be	and be	how they
		digital	digital	discerning in	discerning in	discerning in	discerning in	communicate
		content.	content.	evaluating	evaluating	evaluating	evaluating	with one
				digital	digital	digital	digital	another and
				content.	content.	content.	content.	with other
				Select, use	Select, use	Select, use	Select, use	systems.
				and combine a	and combine a	and combine a	and combine a	Understand how
				variety of	variety of	variety of	variety of	instructions are
				software	software	software	software	stored and

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		(including	(including	(including	(including	executed within
		internet	internet	internet	internet	a computer
		services) on a	services) on a	services) on a	services) on a	system;
		range of	range of	range of	range of	understand how
		digital devices	digital devices	digital devices	digital devices	data of various
		to design and	to design and	to design and	to design and	types (including
		create a range	create a range	create a range	create a range	text, sounds and
		of programs,	of programs,	of programs,	of programs,	pictures) can be
		systems and	systems and	systems and	systems and	represented and
		content that	content that	content that	content that	manipulated
		accomplish	accomplish	accomplish	accomplish	digitally, in the
		given goals,	given goals,	given goals,	given goals,	form of binary
		including	including	including	including	digits
		collecting,	collecting,	collecting,	collecting,	undertake
		analysing,	analysing,	analysing,	analysing,	creative
		evaluating and	evaluating and	evaluating and	evaluating and	projects that
		presenting	presenting	presenting	presenting	involve
		data and	data and	data and	data and	selecting, using,
		information.	information.	information.	information.	and combining
						multiple
						applications,
						preferably
						across a range
						of devices, to
						achieve
						challenging
						goals, including
						collecting and
						analysing data
						and meeting the
						needs of known
						-
						users.

Digital	Children take	Recognise	Recognise	Use	Use	Use	Use	Create, reuse,
Literacy	part in	common uses	common uses	technology	technology	technology	technology	revise and
	Internet	of	of	safely,	safely,	safely,	safely,	repurpose
	Safety and will	information	information	respectfully	respectfully	respectfully	respectfully	digital artefacts
	talk about how	technology	technology	and	and	and	and	for a given
	to stay safe	beyond	beyond	responsibly;	responsibly;	responsibly;	responsibly;	audience, with
	online and	school.	school.	recognise	recognise	recognise	recognise	attention to
	offline and			acceptable/	acceptable/	acceptable/	acceptable/	trustworthiness,
	who they can	Use	Use	unacceptable	unacceptable	unacceptable	unacceptable	design and
	speak to for	technology	technology	behaviour;	behaviour;	behaviour;	behaviour;	usability.
	help.	safely and	safely and	identify a	identify a	identify a	identify a	
		respectfully,	respectfully,	range of ways	range of ways	range of ways	range of ways	Understand a
		keeping	keeping	to report	to report	to report	to report	range of ways to
		personal	personal	concern about	concern about	concern about	concern about	use technology
		information	information	content and	content and	content and	content and	safely,
		private;	private;	contact.	contact.	contact.	contact.	respectfully,
		identify	identify					responsibly and
		where to go	where to go					securely,
		for help and	for help and					including
		support	support					protecting their
		when they	when they					online identity
		have	have					and privacy;
		concerns	concerns					recognise
		about	about					inappropriate
		content or	content or					content, contact
		contact on	contact on					and conduct, and
		the internet	the internet					know how to
		or other	or other					report concerns.
		online	online					
		technologies.	technologies.					