

## The Brow Primary School Progression Ladder for Computing



Computing Progression	Control &	Programming and	Data and	Hardware and	Understanding	Information
	Algorithms	Development	Representation	Processing	Technologies	Technology
			Modelling		Electronic	Multimedia, Digital
			Simulations		Communication	Imagery, animation,
			Simulations		Research	sound and music
					Networks	
					E-Safety	
Foundation Stage Emerging	Understands simple instructions. Begins to follow simple procedures.	Uses a simple program on a computer or a device.	Begins to recognise the different forms of data. Graphs, lists, webpages and tables. Begins to collect and interpret simple sets of data.	Begins to operate simple equipment e.g. turns on CD player and uses a remote control.	Begins to understand how computers can be linked together. Begins to understand email and websites.	Begins to know that information can be retrieved on computers.
Foundation Stage Expected/Year 1 Emerging	Can understand and follow instructions and begin to write own algorithms.	Completes a simple program on a computer or device. Begins to write own program/sequences.	Uses data to answer questions e.g. favourite colour of class. Uses computers to make a table or list of data. Begins to collect data on a data logging device. Begin to recognise that digital content can be in many forms.	Uses ICT hardware to interact with age appropriate computer software. Start to recognise that computers need programs to function.	Uses digital devices and computers to communicate e.g. webcams. Accesses and saves information on a class network folder. Begins to obtain content from the world wide web using a web browser.	Use computer devices and software to create, research and store data. Uses drawing software to design a poster for a purpose. Knows some common uses of information technology beyond the classroom.





Foundation Stage
Exceeding/Year 1
Expected

Begin to understand what an algorithm is. Begin to write a simple set of instructions for a purpose using symbols. Knows that users can develop their own programs.
Demonstrates this by creating simple programs e.g. on programmable robots to produce different outcomes.
Executes, checks and changes programs.
Understands that programs execute by following precise instructions.

Recognises that digital content can be represented in many forms. Begins to distinguish between some of these forms and can explain the different ways that they communicate information. Organises, stores, edits and manipulates data in different digital formats. Work as a class/ individually to use a simple pictogram/bar chart program to develop simple graphical awareness and one to one correspondence. Make choices to control a simple simulation program.

Understands that computers have no intelligence and can do nothing unless a program is used.

Show an understanding of the range of devices and tools encountered in everyday life.

Recognises that all software executed (used) on digital devices is programmed (look at examples)

Show an awareness of information sources both on and off screen. Show an awareness that something created digitally on a computer / tablet can be shared with others via another device (printer, projector, apple TV, Obtains content from the world wide web usina a web browser. Understand the importance of communicating safely and respectfully on line and the need for keeping personal information private. Knows what to do when concerned about content or being contacted Contribute ideas to a class email / blog to other classes/ peers.

Uses software under supervision to create. store and edit digital content using appropriate files and folder names. Work with others to contribute to a digital class resource including text, graphics and sound. Understands that people interact with computers. Use a range of tools in a graphics package to crate and manipulate images. Choose suitable sounds from a bank to express ideas. Record short speech. Shares their use of

technology in school.

Knows common use of

outside school.

improve it.

information technology

Talks about their work and makes changes to





Year 1 Exceeding/Year	Understands what an	Knows that users can	Recognises that digital	Understands that	Obtains content from the	Uses technology with
	algorithm is.	develop their own	content can be	computers have no	world wide web using a	increasing independence
2 Emerging	Writes a set of	'		' ·		- '
		programs.	represented in many	intelligence and can do	web browser.	to purposely organise
	instructions for a	Demonstrates this by	forms.	nothing unless a program	Understand the	digital content.
	purpose using symbols,	creating simple programs	Begins to distinguish	is used.	importance of	Shows awareness of the
	numbers and words.	e.g. on programmable	between some of these	Recognises that all	communicating safely and	quality of digital content
	Understands that	robots,.	forms and can explain the	software executed (used)	respectfully on line (e-	collected.
	computes need precise	Executes, checks and	different ways that they	on digital devices is	safety) and the need for	Uses software to
	instructions.	changes programs.	communicate information.	programmed (look at	keeping personal	manipulate and present
	Shows care and precision	Understands that	Organises, stores, edits	examples)	information private.	digital content: data and
	to avoid errors.	programs execute by	and manipulates data in	Begin to recognise and	Knows what to do when	information.
		following precise	different digital formats.	use a range of input and	concerned about content	Shares their experiences
		instructions.		output devices e.g	or being contacted.	of technology in school
		Begins to use logical		robotics.	Begins to carry out	and outside school.
		reasoning to predict the		Starts to understand how	simple web searches to	Talks about their work
		behaviour of programs.		programs specify the	collect digital content.	and makes some
				function of a general		improvements to
				purpose computer.		solutions based on
						feedback received.
Year 2 Expected	Understands what an	To plan ahead and	Recognises the different	Recognises that a range	Navigates the web and	Uses technology with
	algorithm is and is able to	develops their own	types of data e.g. text	of digital devices can be	can carry out simple web	increasing independence
	express simple linear	programs e.g. robots.	and number.	considered a computer	searches to collect	to purposely organise
	(non-branching)	Uses arithmetic	Appreciates that	(look at examples).	digital content.	digital content.
	algorithms as symbols.	operators and what if	programs can work with	Recognises and uses a	Save and retrieve	Shows awareness of the
	Understands that	statements and loops	different types of data.	range of input and output	information from the	quality of digital content
	computers need precise	within programs.	Collect, organise and	devices (e.g. robotics)	internet.	collected.
	instructions.	Uses logical reasoning to	classify data structured	Understands how	Navigate websites using	Uses software to
	Demonstrates care and	predict the behaviour of	in tables and graphs to	programs specify the	tabs, hyperlinks, back	manipulate and present
	precision to avoid errors.	programs and detects	make it useful when	function of a general	and forward buttons,	digital content: data and
	Understand that	and corrects simple	answering questions.	purpose computer.	home button.	information.
	algorithms are used on	semantic errors i.e.	Confidently organises,	Show an awareness of a	Understand that	Save and retrieve work.
	digital devices as	debugging.	stores, edits and	range of inputs to a	computers can be linked	Use a range of tools in a
	programs.	debugging.	manipulates data in a	computer (IWB, Mouse,	to share resources.	paint package / image
	, ,					, , ,
	Control a device, on and		range of digital formats	keyboard, screen,	Demonstrates use of	manipulation to modify an





	off screen.		including branching	microphone, microscope)	computers safely and	image when
	Simple algorithms using		databases, trees and	and wireless technology.	responsibly, knowing a	communicating an idea or
	loops and selection (as		databases and use it to	3,	range of ways to report	desired effect.
	statements).		answer questions.		unacceptable content and	Create simple animations
	Uses logical reasoning to		Begins to recognise the		contact when online.	to tell a story.
	predict outcomes.		difference between data		Work collaboratively by	Compose music using
	Detects and corrects		and information .		email to share and	icons. Produce simple
	errors (debugging) in		Play and adventure game		request information	presentations including
	algorithms.		and use simple choices		safely and respectfully.	sounds captured or
			observing the results.		, , ,	created.
			Understand that			Shares their experiences
			computers are good at			of technology in school
			replicating real life			and outside school.
			events and allow them to			Talks about their work
			explore contexts that			and makes some
			are not usually possible.			improvements to
						solutions based on
						feedback received.
Year 2 Exceeding/End	Understands what an	Develops their own	Recognises the different	Recognises that a range	Navigates the web and	Uses technology with
of Key Stage	algorithm is and is able to	programs e.g. robots.	types of data e.g. text	of digital devices can be	can carry out simple web	increasing independence
	express simple linear	Uses arithmetic	and number.	considered a computer	searches to collect	to purposely organise
	(non-branching)	operators and what if	Appreciates that	(look at examples).	digital content.	digital content.
	algorithms as symbols.	statements and loops	programs can work with	Recognises and uses a	Demonstrates use of	Shows awareness of the
	Understands that	within programs.	different types of data.	range of input and output	computers safely and	quality of digital content
	computers need precise	Uses logical reasoning to	Recognises that data can	devices (e.g. robotics)	responsibly, knowing a	collected.
	instructions.	predict the behaviour of	be structured in tables	Understands how	range of ways to report	Uses software to
	Demonstrates care and	programs and detects	to make it useful.	programs specify the	unacceptable content and	manipulate and present
	precision to avoid errors.	and corrects simple	Confidently organises,	function of a general	contact when online.	digital content: data and
	Understand that	semantic errors i.e.	stores, edits and	purpose computer.	Begins to understand the	information.
	algorithms are used on	debugging.	manipulates data in a	Begins to recognise that	difference between the	Shares their experiences
	digital devices as	Begins to create	range of digital formats.	computers collect data	internet and internet	of technology in school
	programs.	programs that implement	Recognises the	from various input	services e.g. world wide	and outside school.
	Designs simple algorithms	algorithms to achieve	difference between data	devices e.g. sensors.	web.	Talks about their work





using loops and selection (as statements). Uses logical reasoning to predict outcomes. Detects and corrects errors (debugging) in algorithms. Begins to use design solutions e.g. repetition to improve algorithms.	given goals.	and information.		and makes some improvements to solutions based on feedback received. Begins to create digital content to achieve a given goal through combining software e.g. blogs.





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			Simulations		Research	sound and music
					Networks	
					E-Safety	
Year 3 Emerging	Designs some solutions	Begins to create	Understands the	Begins to recognise	Understands the	Collects, organises and
	(algorithms) that use	programs that	difference between	that computers collect	difference between the	presents data and
	repetition and two way	implement algorithms to	data and information.	data from various input	internet and internet	information in digital
	selection (i.e if, then,	achieve given goals.	Knows why sorting data	devices e.g. sensors and	services e.g. world wide	content.
	else.)	Identifies and assigns	in a 'flat file' can	application software.	web.	Creates digital content
	Uses diagrams to	variables in programs.	improve searching for	Begins to understand	Shows some awareness	to achieve a given goal
	express solutions.	Uses loop commands	information.	the difference between	of, and can use some	through combining
	Starts to use logical	"until" and sequences of	Begins to use filters or	hardware and	internet services such	software, packages and
	reasoning to predict	selection statements in	can perform single	application software	as VOIP.	internet services to
	outputs, showing some	programs, including if,	criteria searches for	and their roles within a	Recognises what is	communicate with a
	awareness of inputs.	then, else statements.	information.	computer system.	acceptable and	wider audience e.g
					unacceptable behaviour	blogging.
					when using technologies	Makes some
					and online services.	appropriate
						improvements to
						solutions based on
						feedback received and
						can comment on the
						success of the solution.





Year 3 Expected

Designs solutions
(algorithms) that use a
short sequence of
instructions including
repetition and two way
selection (i.e if, then,
else.)
Uses diagrams to
express solutions.
To plan ahead on and
off screen.
Uses logical reasoning
to predict outputs,
showing some

awareness of inputs.

Create programs that implement algorithms to achieve given goals. Identifies and assigns variables in programs. Uses loop commands "until" and sequences of selection statements in programs, including if, then, else statements.

Understands and can explain the difference between data and information. Knows why sorting data in a 'flat file' can improve searching for information. Use a database to enter and save information. Follow straight forward lines of enquiry to search their own data Uses filters or can perform single criteria searches for information. Use models and simulations to discover thigs and solve problems. Understand that simulations are useful in widening experiences beyond the classroom. Make use of a simple spreadsheet to store data and produce

graphs.

Use a data logger with

physical data (sound,

support to sense

Recognise that computers collect data from various input devices e.g. sensors and application software. Understand the difference between hardware and application software and their roles within a computer system.

Understands the difference between the internet and internet services e.g. world wide web. Shows awareness of. and can use some internet services such as VOIP. Beginning to show discernment in their use of computing devices and tools for a purpose and explain why the choices were made. Understand the need to abide by school and wider e-safety rules. Recognises what is acceptable and unacceptable behaviour when using technologies and online services. Understands that passwords are a key to accessing a personalised set or resources and files Understand that passwords are critical in everyday use (banking, emails).

Confidently collects, organises and presents data and information in digital content. Creates digital content to achieve a given goal through combining software, packages and internet services to communicate with a wider audience e.g blogging. Record and present information integrating a range of appropriate media text, graphics, sound, video and hyperlinks. Manipulate digital images using a wide range of tools to covey a specific mood, style or idea. Create a simple podcast selecting and importing existing music and sound effects as well as their own recordings. Makes effective improvements to solutions based on feedback received and





		light, temperature)		Ask own questions linked to the curriculum study and use ICT sources to find answers ( search engines, index, menu, hyperlinks)	can comment on the success of the solution.
Vear 3 Exceeding  Designs solution (algorithms) the repetition and selection (i.e. in else.)  Uses diagrams express solution to predict out showing some awareness of Begins to show awareness of best complete humans or complete shows a solution to the second sec	implement algorithms to achieve given goals. I dentifies and assigns variables in programs. Uses loop commands "until" and sequences of selection statements in programs, including if, then, else statements. Begins to understand the difference between tasks if and 'if', then and else statements.	Understands and can clearly explain the difference between data and information. Knows why sorting data in a 'flat file' can improve searching for information. Uses filters and can perform single criteria searches for information. Starts to perform more complex searches for information e.g. relational operators.	Recognise that computers collect data from various input devices e.g. sensors and application software. Understand the difference between hardware and application software and their roles within a computer system. Begins to understand why and when computers are used.	Understands the difference between the internet and internet services e.g. world wide web.  Shows awareness of, and can use some internet services such as VOIP.  Recognises what is acceptable and unacceptable and unacceptable behaviour when using technologies and online services.  Produces safety guidance on viruses, cyber bullying and stranger danger.  Demonstrate an understanding or URLs.	Collects, organises and presents data and information in digital content. Creates digital content to achieve a given goal through combining software packages and internet services to communicate with a wider audience e.g blogging. Makes effective improvements to solutions based on feedback received and can comment on the success of the solution. Makes judgements about the effectiveness and suitability of the digital content for the targeted audience.





Year 4 Emerging	Shows an awareness of	Begin to understand	Understands and can	Begins to understand	Understands how to	Begins to make
	tasks best completed	differences between 'if'	clearly explain the	why and when	effectively use search	judgements about
	by human or computers.	and 'if', then and else	difference between	computers are used.	engines and knows how	digital content when
	Begins to design	statements.	data and information.	Understands the main	search results are	evaluating and assigning
	solutions by	Uses some variable and	Knows why sorting data	functions of the	selecting including that	it for a given audience.
	decomposing a problem.	relational operators	in a 'flat file' can	operating systems.	search engines are 'web	Recognises the audience
	Begins to recognise	within a loop to control	improve searching for	Begins to know the	crawler programs'	when designing and
	that there is more than	'endings' in programs.	information.	difference between	Selects, combines and	creating digital content.
	one solution to a	Designs, writes and	Uses filters and can	physical, wireless and	uses some internet	Understands the
	problem.	debugs (modular)	perform single criteria	mobile networks. Look	services.	potential of information
		programs using	searches for	at examples e.g.	Demonstrates	technology for
		procedures	information.	internet: how they	responsible use of	collaboration when
		(algorithms).	Starts to perform more	provide multiple	technologies and online	computers are
		Begins to know that a	complex searches for	services such as the	services and knows how	networked.
		procedure can be used	information e.g.	world wide web.	to report concerns.	Uses criteria to
		to hide details in	relational operators.			evaluate the quality of
		programs.	Begins to analyse and			solutions.
			evaluate data and			
			information and			
			recognises that poor			
			quality data leads to			
			unreliable results.			
Year 4 Expected	Knows which tasks best	Use control software to	Work as part of a	Understands why and	Perform internet	Makes judgements
	completed by human or	control devices using	class/group project to	when computers are	searches using	about digital content
	computers.	output commands or on	create a data collection	used.	different search	when evaluating and
	Engage in logo based	screen. Predict, test	sheet and use it to	Understands the main	engines and check the	assigning it for a given
	problem solving	and refine	create a simple	functions of the	results against each	audience.
	activities that require	programming.	database to answer	operating systems.	other explaining why	Recognises the audience
	the need to write	Understands	questions.	Knows the difference	they may be different.	when designing and
	procedures, predict,	differences between	Interrogate a database	between physical,	Show an awareness of	creating digital content.
	test and modify.	and appropriately uses	by searching, sorting	wireless and mobile	the need for accuracy	Use advanced tools in





Designs solutions by decomposing a problem and creates a subsolution for each part of the problem (decomposition)

Recognises that there is more than one solution to a problem.

'if' and 'if', then and else statements.

Uses variable and relational operators within a loop to control 'endings' in programs.

Designs, writes and debugs (modular) programs using procedures (algorithms).

Knows that a procedure can be used to hide details in programs.

and graphing. Understands and can clearly explain the difference between data and information. Knows why sorting data in a 'flat file' can improve searching for information. Performs more complex searches for information e.g. using Booleam and relational operators. Analyses and evaluates data and information and recognises that poor quality data leads to unreliable results and inaccurate conclusions Create a spreadsheet model to explore patterns and relationships. Make predictions and enter simple formulae in the process. Use a data logger confidently, connected

to the computer or

remotely to capture

networks. Look at examples e.g. internet: how they provide multiple services such as the world wide web. in spelling and syntax to search effectively. Understands how to effectively use search engines and knows how search results are selecting including that search engines are 'web crawler programs' Selects, combines and uses internet services. Share work created electronically by email. VLE or uploading to publishing websites. Respond to feedback given electronically. Demonstrates responsible use of technologies and online services and knows a range of ways to report concerns both within school and the wider community. Understand copyright regulations when using copy and paste to reproduce information for a particular audience. Question the accuracy

word processing software such as tabs. text formatting, line and paragraph spacing to create quality presentations for a known audience. Make a short film / animation suing still and moving images they have sources / captured or created. Create mutilpe track compositions that contain a variety of sounds Understands the potential of information technology for collaboration when computers are networked. Uses criteria to evaluate the quality of solutions. Can identify improvements, making some refinements to the solution and future solutions.





			continuous or		and validity of	
			intermittent data		information available via	
			readings.		the internet.	
			Interpret the results		Demonstrate an	
			and use the data in		understanding of the	
			their own		school network and how	
			investigations.		it links computers to	
			Identify the		resources in school and	
			advantages us using ICT		beyond.	
			to capture data that		Compare the school	
			might be otherwise		network to those in the	
			problematic.		wider world e.g. Banks	
					Make choices about the	
					devices and tools used	
					for specific purposes.	
Year 4 Exceeding	Knows which tasks are	Understands	Clearly explain the	Understands why and	Understands how to	Makes sound
	best completed by	differences between	difference between	when computers are	effectively use search	judgements about
	human or computers,	and appropriately uses	data and information,	used.	engines and knows how	digital content when
	giving examples.	'if' and 'if', then and else	giving examples.	Understands the main	search results are	evaluating and assigning
	Designs solutions by	statements.	Knows why sorting data	functions of the	selecting including that	it for a given audience.
	decomposing a problem	Uses variable and	in a 'flat file' can	operating systems.	search engines are 'web	Recognises the audience
	and creates a sub-	relational operators	improve searching for	Knows the difference	crawler programs'	when designing and
	solution for each part	within a loop to control	information.	between physical,	Selects, combines and	creating digital content.
	of the problem	'endings' in programs.	Performs more complex	wireless and mobile	uses internet services.	Understands the
	(decomposition).	Designs, writes and	searches for	networks. Look at	Demonstrates	potential of information
	Recognises that there	debugs (modular)	information e.g. using	examples e.g. internet:	responsible use of	technology for
	are several solutions to	programs using	Booleam and relational	how they provide	technologies and online	collaboration when
	the same problem and	procedures	operators.	multiple services such	services and knows a	computers are
	various algorithms exist	(algorithms).	Analyses and evaluates	as the world wide web.	range of ways to report	networked.
	for different purposes.	Knows that a procedure	data and information	Begins to recognise the	concerns.	Uses criteria to





	can be used to hide details in programs. Begins to recognise that programming bridges the gap between algorithms and computers.	and recognises that poor quality data leads to unreliable results and inaccurate conclusions. Starts to understand key vocabulary e.g. binary and bit patterns.	function of the main internal parts of basic computer designs (architecture.)	Begins to understand how search engines rank results.	evaluate the quality of solutions.  Can confidently identify improvements, making some refinements to the solution and future solutions.





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			Simulations		Research	sound and music
					Networks	
					E-Safety	
Year 5 Emerging	Knows which tasks best	Begins to recognise that	Knows why sorting data in	Understands why and	Begins to understand how	Makes sound judgements
	completed by human or	programming bridges the	a 'flat file' can improve	when computers are used.	search engines rank	about digital content
	computers.	gap between algorithms	searching for	Understands the main	search results.	when evaluating and
	Engage in logo based	and computers.	information.	functions of the	Understands how to	assigning it for a given
	problem solving activities	Has some practical	Performs more complex	operating system.	construct static web	audience.
	that require the need to	experience of high level	searches for information	Knows the difference	pages using HTML and	Recognises the audience
	write procedures,	textural languages e.g.	e.g. using Booleam and	between physical,	CSS.	when designing and
	predict, test and modify.	standard libraries when	relational operators.	wireless and mobile	Begins to understand	creating digital content,
	Knows which tasks are	programming.	Analyses and evaluates	networks. Look at	data transmission	(makes examples and
	best completed by human	Uses some operators and	data and information and	examples e.g. internet:	between digital	tests them).
	or computers.	expressions e.g. Booleam.	recognises that poor	how they provide multiple	computers over networks	Understands the
	Designs solutions by		quality data leads to	services such as the	including the internet i.e.	potential of information
	decomposing a problem		unreliable results and	world wide web.	IP addresses and packet	technology for
	and creates a sub-		inaccurate conclusions.	Recognise the function of	switching.	collaboration when
	solution for each part of		Starts to understand key	the main internal parts of		computers are
	the problem		vocabulary e.g. binary and	basic computer designs		networked.
	(decomposition).		bit patterns.	(architecture.)		Uses criteria to evaluate
	Recognises that there		Begins to understand			the quality of solutions.
	are several solutions to		that digital computers			Confidently identify
	the same problem.		are binary to represent			improvements, making
	Understands that various		all data.			some refinements to the
	algorithms exist for					solution and future
	different functions.					solutions.





**Year 5 Expected** 

which tasks are best completed by human or computers. Designs solutions by decomposing a problem and creates a subsolution for each part of the problem (decomposition). Recognises that there are several solutions to the same problem. Understands that various algorithms exist for different functions. Begins to identify patterns in algorithms that help to solve specific problems.

Knows and can explain

Use control software to control devices using output commands or on screen, Predict, test and refine programming. Understands that programming bridges the gap between algorithmic solutions and computers. Has practical experience of high level textural languages e.g. standard libraries when programming. Uses some operators and expressions e.g. Booleam. Starts to apply these in the context of program control (e.g. input/process/output.)

Work as part of a class/group project to create a data collection sheet and use it to create a simple database to answer auestions. Knows why sorting data in a 'flat file' can improve searching for information. Interrogate a database by searching, sorting and graphing. Performs more complex searches for information e.g. using Booleam and relational operators. Analyses and evaluates data and information and recognises that poor quality data leads to unreliable results and inaccurate conclusions. Begins to understand that digital computers are binary to represent all data Begins to understand

how bit patterns

Recognise the function of the main internal parts of basic computer designs (architecture.)
Begins to understand the concept behind the fetch-execute cycle.
Starts to appreciate that there is a range of operating systems and application software for the same hardware.

Perform internet searches using different search engines and check the results against each other explaining why they may be different. Show an awareness of the need for accuracy in spelling and syntax to search effectively. Understands how search engines rank search results and test some of these systems. Understands how to construct static web pages using HTML and CSS Understands data transmission between digital computers over networks including the internet i.e. TP addresses Demonstrate an understanding of the school network and how it links computers to resources in school and beyond. Compare the school

Evaluates the appropriateness of digital services, internet services and application software to achieve given goals. Recognises ethical issues surrounding the application of information technology beyond school. Designs criteria to critically evaluate the quality of solutions. Uses the criteria to identify improvements, and can make appropriate some refinements to the solution. Use advanced tools in word processing software such as tabs. text formatting, line and paragraph spacing to create quality presentations for a known audience Make a short film / animation suing still and moving images they have sources / captured





represent numbers and network to those in the or created. Create multiple track images. wider world e.g. Banks Create a spreadsheet Make choices about the compositions that model to explore devices and tools used contain a variety of for specific purposes. patterns and sounds. relationships. Make Share work created predictions and enter electronically by email. VLE or uploading to simple formulae in the process. publishing websites. Use a data logger Respond to feedback confidently, connected given electronically. to the computer or Demonstrates remotely to capture responsible use of technologies and online continuous or services and knows a intermittent data readings. range of ways to report Interpret the results concerns both within and use the data in school and the wider their own community. investigations. Understand copyright Identify the regulations when using advantages us using ICT copy and paste to to capture data that reproduce information might be otherwise for a particular problematic. audience. Question the accuracy and validity of information available via the internet.





Year 5 Exceeding	Explains confidently	Understands that	Knows why sorting data in	Recognises and	Understands how search	Evaluates the
	which tasks are best	programming bridges the	a 'flat file' can improve	understands the function	engines rank search	appropriateness of digital
	completed by human or	gap between algorithmic	searching for	of the main internal parts	results and test and	services, internet
	computers.	solutions and computers.	information.	of basic computer	evaluate some of these	services and application
	Designs solutions by	Has practical experience	Performs more complex	designs (architecture.)	systems.	software to achieve given
	decomposing a problem	of high level textural	searches for information	Understands the	Understands how to	goals.
	and creates a sub-	languages e.g. standard	e.g. using Booleam and	concepts behind the	construct static web	Recognises ethical issues
	solution for each part of	libraries when	relational operators.	fetch-execute cycle.	pages using HTML and	surrounding the
	the problem	programming.	Analyses and evaluates	Starts to appreciate that	CSS.	application of information
	(decomposition).	Uses a range of	data and information and	there is a range of	Understands data	technology beyond school.
	Recognises that there	operators and	recognises that poor	operating systems and	transmission between	Designs criteria to
	are several solutions to	expressions e.g. Booleam.	quality data leads to	application software for	digital computers over	critically evaluate the
	the same problem.	Starts to apply these in	unreliable results and	the same hardware.	networks including the	quality of solutions.
	Understands that various	the context of program	inaccurate conclusions.		internet i.e. IP addresses	Uses the criteria to
	algorithms exist for	control ( e.g.	Knows that digital		and packet switching.	identify effective
	different functions.	input/process/output.)	computers use binary to			improvements, and can
	Identifies patterns in		represent all data.			make appropriate some
	algorithms that help to		Understands how bit			refinements to the
	solve specific problems.		patterns represent			solution.
	· ·		numbers and images.			
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Year 6 Emerging	Begins to understand	Understands that	Knows that digital	Recognises and	Understands how	Begins to justify the
	that iteration is the	programming bridges	computers use binary to	understands the	search engines rank	choice of, combines and
	repetition of a process	the gap between	represent all data.	function of the main	search results and test	uses multiple digital
	such as a loop.	algorithmic solutions	Understands how bit	internal parts of basic	and evaluate some of	devices, internet
	Recognises that	and computers.	patterns represent	computer designs	these systems.	services and application
	different algorithms	Has practical	numbers and images.	(architecture.)	Understands how to	software to achieve
	exist for the same	experience of high level	Begins to know that	Understands the	construct static web	given goals.
	problem.	textural languages e.g.	computers transfer	concepts behind the	pages using HTML and	Starts to evaluate the
	Detects errors in	standard libraries when	data in binary (code).	fetch-execute cycle.	CSS.	trustworthiness of
	algorithms.	programming.	Starts to recognise the	Knows that there is a	Understands data	digital content.
	Rewrites own tests and	Uses a range of	relationship between	range of operating	transmission between	Begins to consider how
	sequences.	operators and	binary and file size	systems and application	digital computers over	the use of technology
	Is able to identify some	expressions e.g.	(uncompressed)	software for the same	networks including the	can impact on society.
	similarities and	Booleam.	Defines data types: real	hardware.	internet i.e. IP	
	differences in	Starts to apply these in	numbers and booleam.	Tests, compares and	addresses and packet	
	situations and can use	the context of program	Queries data on one	contrasts the	switching.	
	these to solve problems	control ( e.g.	table using typical	effectiveness of	Begins to know the	
	(pattern recognition.)	input/process/output.)	query language.	operating systems (eg.	names of hardware e.g	
		Starts to select the		Windows android)	hubs and routers.	
		appropriate data types.				
Year 6 Expected	Cretae sequences of	Understands that	Knows that digital	Abide by school and	Understands how search	Justifies the choice of,
	commands to control	programming bridges the	computers use binary to	wider community rules	engines rank search	combines and uses
	devices in response to	gap between algorithmic	represent all data.	for e-safety.	results.	multiple digital devices,
	sensing inputs as well as	solutions and computers.	Understands how bit	Recognises and	Clearly evaluates these	internet services and
	outputs.	Has practical experience	patterns represent	understands the function	systems.	application software to
	Understand that	of high level textural	numbers and images.	of the main internal parts	Understands how to	achieve given goals.
	iteration is the repetition	languages e.g. standard	Knows that computers	of basic computer	construct static web	Multimedia work
	of a process such as a	libraries when	transfer data in binary	designs (architecture.)	pages using HTML and	demonstrates restrained
	loop.	programming.	(code).	Understands the	CSS.	use of effects that
	Recognises that	Uses a range of	Recognises the	concepts behind the	Designs and creates own	convey meaning rather
	different algorithms	operators and	relationship between	fetch-execute cycle.	web pages for a purpose.	than used to impress.
	exist for the same	expressions e.g. Booleam	binary and file size	Knows that there is a	Understands data	Evaluates the





problem.
Detects errors in algorithms.
Rewrites and tests own tests and sequences ensuring that it is fit for purpose.
Is able to identify similarities and differences in situations and can use these to solve problems (pattern recognition.)

and applies them in the context of program control ( e.g. input/process/output.) Starts to select the appropriate data types. (uncompressed) Queries data on one table using typical query language. Solve a problem by planning and carrying out data collection, organising and analysing data involving complex searches using a database to draw conclusions and present findings. Demonstrate a need for accuracy by spotting implausible data. Understand the need for

the wider world (health, police, criminal, banking databases)
Set up and use own spreadsheets that contains formulae to investigate what if questions and when changing variables.
Relate their use of spreadsheets to model situations in the wider world.
Independently identify

their own opportunities

data protection and the

need for data security in

range of operating systems and application software for the same hardware. Tests, contrasts and evaluates the effectiveness of operating systems (eg. Windows android) Independently and with due regard for safety, search the internet using a variety of techniques to fins a wide range of information and resources. Use appropriate methods to validate information and check for bias and accuracy. Repurpose and make appropriate use of selected resources for a given audience

acknowledging material

used.

transmission between digital computers over networks including the internet i.e. IP addresses and packet switching. Use collaborative tools and email showing a sensitivity for this type of remote collaboration and communication. Demonstrate an awareness of how filtering and monitoring tools affect their use of the school network and internet and compare this with access outside of school.

trustworthiness of digital content. Knows how the use of technology can impact on society. Use images sourced / captured / manipulated as part of a bigger project. Create and share more sophisticated podcast and consider the effect the podcast will have on the audience. Begins to design criteria for users to evaluate the quality of solutions and uses the feedback to identify some improvements.





		for data logging when			
		carrying out experiments.			
		Able to check and			
		question results by			
		spotting trends in data			
		and identify where			
		problems may have			
		occurred.			
Year 6 Exceeding Understands the	ut Understands that	Knows that digital	Recognises and	Understands how search	Justifies the choice of
iteration is the		computers use binary to	understands the function	engines rank search	and independently
of a process suc		represent all data.	of the main internal parts	results.	combines and uses
loop.	solutions and computers.	Understands how bit	of basic computer	Clearly evaluates these	multiple digital devices,
Recognises that	Has practical experience	patterns represent	designs (architecture.)	systems.	internet services and
different algori		numbers and images.	Understands the	Understands how to	application software to
exist for the sa		Knows that computers	concepts behind the	construct static web	achieve given goals.
problem.	libraries when	transfer data in binary	fetch-execute cycle.	pages using HTML and	Fvaluates the
Detects errors		(code).	Tests, contrasts and	CSS.	trustworthiness of
algorithms.	in programming.  Uses a range of	Recognises the	evaluates a range of	Designs and creates own	digital content and
Rewrites and te		relationship between	3	web pages for a purpose.	considers the usability of
			operating systems and application software that	Understands data	visual design features
sequences.  Is able to ident	fy expressions e.g. Booleam and applies them in the	binary and file size (uncompressed)	is often used for the	transmission between	•
similarities and			same hardware.		when designing and
differences in s	context of program control ( e.g.	Defines data types: real numbers and Booleam.	Begins to understand the	digital computers over networks including the	creating digital artefacts for a known audience.
and can use the			Von Neuman architecture	internet i.e. IP addresses	,
		Queries data on one	in relation to the fetch-		Identifies and explains how the use of
solve problems (		table using typical query		and packet switching.	
recognition.)	appropriate data types.	language.	execute cycle, including	Knows key names of	technology can impact on society.
Begins to recogn		Begins to understand how	how data is stored in	hardware e.g. hubs,	Designs criteria for users
some problems		numbers, images, sounds	memory.	routers, switches and the	to evaluate the quality of
same character		and character sets use	Understand the basic	names of protocols	solutions and uses the
use the same alg		the same bit patterns.	function and operation of	e.g.SMTP, IMAP, POP,	feedback to identify some
to solve both	Starts to detect and		location addressable	FTP, TCP/IP associated	improvements and can make
(generalisation)	correct syntactical		memory.	with computer systems.	appropriate refinements to
	errors.				the solution.



