Progression in: Computing

Subject leader: Jim Sharp

<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	
Programming:	Programming:	Programming:	Programming:	Programming:	Programming:	
robot						
instruction						
program	Clockwise					
turtle	Anti-clockwise					
control	underneath					
rule	sprite					
coding	(de)bug					
design	data		repetition			
up	information		selection			
down	object		simulation			
centre	model		Simulation		binary	
position	process		pattern	protocol	functionality	
direction	horizontal	digitise	logical reasoning	deconstruct	aesthetics	
above	vertical	algorithm	structure	improve	user	
below	diagonal (i.e. sloped)	sequence	cause	efficiency	interface	
screen	symmetrical	series	characteristic	audience	deterministic	
touch-screen	reflect	programming language	nhase	complex	simultaneous	
shut down	left	purpose		prior	cumulative	
start	right	value	transition	subsequent	concentric	
menu		perpendicular	angle	intersecting	radial	
Hardware:	Hardware:	Hardware:	Hardware:	Hardware:	Hardware:	
	network	motor		gateway		
	device	input		hub		
	application	output		router		
	tool	digital resources	sensor	server		
	file	text	physical	driver		
	drive	post	system	cookies		
	disk	social media	browser	file directory		
	(sub)folder	community	gigabyte* (including	send		
	save	meme	knowledge of common file	reply		
	save-as	email	sizes e.g.	CC/BCC		
internet	internet search	blog	photo, document)	reply-all		
web	video	vlog	back up	recipient		
computer	audio	forum	Jpeg	field		
арр	text	font	pixel	permissions		
Google	image	URL	resolution	cache		
search engine	hardware	word processing	quality	flash drive	IP address	
gif	editing/presentation software	voice recognition	pdf	memory stick/pen	phishing	
digital	window	kilobyte	USB	HTML	virus	
	material	megabyte	video call	open source	terabyte	

		tab		Wikis	
		control panel		solid state	
		icon		fibre-optic	
		file extension		identity theft	
		personal data			
Controls:	Controls:	Controls:	Controls:	Controls:	Controls:
		"control alt"			
		cursor			
	shift	short cut			
	control	drag			
	caps-lock	drop			
keyboard	password	cut			
mouse	return	сору			
right-click	enter	paste			
left-click	back-space	crop			
double-click	delete	rotate			
screen	open	flip	control pane		
touch-screen	close	top-and-tail	animation pane		
shut down	select	screengrab	pop up	internet/browser history	
start	zoom	minimise	publish	bookmarks	alphanumeric
menu	highlight	maximise	share	password strength	special character
Discussion:	Discussion:	Discussion:	Discussion:	Discussion:	Discussion:
				impact	
				obstacle	controversy
				crucial	prejudice
				rigorous	authentic
			inappropriate	verify	plausible
	similarity		contribution	context	analyse
	difference	relevance retrieve content	manipulate	paraphrase	discern
research	landscape	numerical clarify opinion	reliability	quote	copyright
search	portrait	communication	consequence	verbatim	plagiarism

Theme: Computer Science						
Year 1	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	
Program:	Program:	Program:	Program:	Program:	Program:	
Program a (short set of) instructions on e.g. Bee-Bot, Scratch.	Create a simple program	Write programs that accomplish a simple purpose (e.g. a Powerpoint)	Start to design programs for a specific goal, e.g. planning animation before filming	Design and write programs for a given purpose in more abstract contexts e.g. Excel formulas	Solve problems they identify themselves, designing and writing programs to address this.	
		Start breaking problems into smaller parts, e.g. input and output or background and sprite)	Use selection (if then) and repetition (repeat until) commands	Start using a range of inputs (e.g. sensors, music) to inform selection commands.	Work confidently with sequence, selection, and repetition; work with variables and various forms of input and output.	
Debug:	Debug:	Debug:	Debug:	Debug:	Debug:	

					Alter and improve their own
Identify and start to verbalise	Identify and describe bugs in a	Debug a simple program	Identify and fix bugs in their	Independently alter a program,	and others' programs,
problems in a simple program	simple program, and start to	independently, and start to	own programming, e.g. for a	e.g. to make it more efficient	explaining why, and predicting
(written by someone else).	suggest corrections.	identify bugs in their own work.	goal that's specified to them.	and remove superfluous code.	and/or describing the effect.
Use Logic:	Use Logic:	Use Logic:	Use Logic:	Use Logic:	Use Logic:
Start to demonstrate logical					
reasoning e.g. by role-playing	Verbalise what will happen in a				
the movements for a Bee-Bot	simple program before	Explain how some simple	Explain what logical reasoning	Use precise language to explain	
program.	activating.	algorithms work.	means.	how to debug a program	

Theme: Digital Literacy						
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
Create, manipulate and	Create, manipulate and	Create, manipulate and	Create, manipulate and	Create, manipulate and	Create, manipulate and	
present:	present:	present:	present:	present:	present:	
	Use initiative to add their own		Select between software and			
Follow instructions to create	input into work, rather than	Follow instructions to create	explain their reasoning why one		Carefully select and move	
content on simple editing	exclusively relying on	content in a range of editing	is more appropriate than	Select and use a range of	content within and between	
programs like Word and Paint.	prescriptive teacher instruction.	programs.	others.	editing software independently.	applications.	
			Deliver a short presentation	- · · ·	Present videos to the widest	
		Deliver a short presentation	with digital content to a wider	Create a presentation with	audience possible - ideally	
	With support, create simple	with digital content to a single	audience of more than one	text/ images to support them in	whole class - and take	
	presentations	child or adult	child and/or adult	showcasing work	questions.	
Manipulate simple digital	Manipulate digital content, e.g.					
content e.g. combine sound	changing the format or					
into text or images	presentation	Copy and paste				
		Manipulate more digital				
		content, e.g. extending to	Take a screenshot and insert it			
		resizing or cropping of images	into another program.			
Organise/Store:	Organise/Store:	Organise/Store:	Organise/Store:	Organise/Store:	Organise/Store:	
					Manipulate folders by creating,	
Save files when the location is	Follow instructions to save files	Save files appropriately without	Create and (re)name folders to	Create and (re)name folders,	renaming and even deleting	
set for them	to a specific location.	support.	collect digital content.	moving files as appropriate.	(with supervision).	
Retrieve:	Retrieve:	Retrieve:	Retrieve:	Retrieve:	Retrieve:	
	Visit a known website and			Find files on a computer		
Do a simple search with	select some information	Perform a keyword search e.g.		without support - keyword	Find files, identify the directory	
support, e.g. within grouping	(copying onto paper being an	within Word or on a search	Search and find files on a	searching and logically	details and move/resave	
and sorting	acceptable form of retrieval).	engine.	computer	manually searching.	elsewhere if necessary.	
					Use search technologies	
			Use a search engine and make	Use a search engine and explain	effectively, explaining how the	
			decisions about which site to	the rationale/purpose behind	algorithms select and rank	
			visit.	which site they choose to visit.	results.	
Analyse/evaluate:	Analyse/evaluate:	Analyse/evaluate:	Analyse/evaluate:	Analyse/evaluate:	Analyse/evaluate:	

				Begin to critique peers' work	
		Start to select and order	Select and sort by relevance	with simple comments that can	Thoughtfully and politely
	Start to make selections when	information according to	start to analyse reliability and	he later rationalised and built	critique their peers' rationale
	presented with multiple choices	relevance	explain their reasons		for selection / sorting
Lising IT cafely:	Lising IT cafely:	Lising IT cafely:	Light IT cafely:	Lising IT cafely:	Using IT cafely:
					Constantly show owereness of
					constantly show awareness of
		Charten la cata a alla a cafata	the densities of an element of the second second		e-safety, e.g. checking settings
Understand that there may be		Start to locate online safety	Understand and use a range of	Understand the need to	as a priority within a new app -
dangers online, and explain	Understand who they can	procedures, e.g. the report-	online safety procedures, e.g.	screenshot an online message	specifically related to
who they'll talk to if they're	report things to if they're	abuse button, screengrabs to	saving a screengrab so it can be	and forward it by email when it	constantly asking e-safety
worried.	worried about anything digital.	desktop.	retrieved.	is concerning.	related questions.
					Engrain the idea of reviewing
		Able to list some forms of	Understand the need to review	Verbalise what is meant by	their messages, texts, posts etc
		personal data (e.g. home	privacy settings to protect	personal data, and explain how	to check for personal data
		address, date of birth).	personal data.	we might reveal it inadvertently	frequently.
Communications:	Communications:	Communications:	Communications:	Communications:	Communications:
	With support, access a			Take notes - asking clarifying	
	communal communication	With support, set up a video		questions where appropriate to	
	system - Purple Mash for home	conference call - Google		ensure notes become more	
	learning	Classroom	Take simple notes	detailed.	Leave messages, if appropriate.
			Write messages on communal	Reply and/or forward to	
			messaging sites (Google	existing messages. This can be	
		Write a short message on a	Classroom) which are poignant	on a nublic messaging board	Understand the concents of CC
		communal site - leaving public	and specific to the site $-$ in this	(Google Classroom) or through	and $B(C_{-})$ using them in safe
		messages on Google Classroom	case educational	e-mail	and bee using them in sale
Licing IT respectfully	Licing IT respectfully	Lising IT respectfully:	Lising IT respectfully	Lising IT respectfully:	Lising IT respectfully:
			Using IT respectfully:	Osing IT respectivity:	Using IT respectfully:
				Challenge others' values and	
				opinions sensitively (and when	Sensitively cope with and
Begin to understand that their		Verbalise the possible	Use their knowledge of	appropriately), beginning to	compensate for other people's
actions may have negative	Start to verbalise other	consequences of their online	consequences to manage and	cope with / compensate for	lack of respect through non-
consequences.	people's needs and feelings.	behaviour.	adapt their own behaviour.	other people's lack of respect.	antagonistic discussion.
			Show awareness of cultural and		
			religious context, adjusting	Show respect for online	Show awareness of, and
		Be polite when challenging	their style of challenge	content, e.g. by investigating	explain, privacy, copyright and
		others' values and opinions.	accordingly.	permissions.	plagiarism.
			Show respect for online		
		Show respect for online	content, e.g. by acknowledging		
		content, e.g. distinguishing	a source. This can be done		
		between public and private	through verbal		
		material	acknowledgement.		

Theme: Practical Skills						
Year 1	<u>Year 2</u>	Year 3	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	
Keyboard:	Keyboard:	Keyboard:	Keyboard:	Keyboard:	Keyboard:	

					Confident use of a mouse,
Find letters on a qwerty	Navigate a qwerty keyboard	Increased speed with a qwerty			including the burgeoning ability
keyboard, e.g. to log in to a	with more confidence, e.g. to	keyboard, e.g. can type several	Use more than one finger to	Start to position hands	to touch-type and/or reach a
simple system successfully, or	log in to a system successfully	sentences in a lesson without	type letters, and both thumbs	correctly, moving fingers rather	standard of more than one
to write their own name	or to write simple sentences	struggling.	for the spacebar.	than arms to type.	word per second.
Mouse:	Mouse:	Mouse:	Mouse:	Mouse:	Mouse:
	Manipulate a mouse without		Use a mouse to manipulate		
	looking, and use the double-	Highlight, drag, right-click and	items on a screen with growing		
Manipulate a mouse	click function.	double-click.	confidence and independence.	Confident use of a mouse.	Seamless use of a mouse.