Digital literacy/Computer science (systems and networks)

KS1:

- 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 material on the internet or other online technologies.

KS2:

- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- 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.

Computer science (programming)

KS1:

- 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

KS2:

- 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
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Information technology (graphics/audio/video)

Information technology (data and information)

KS1:

- Use technology purposefully to create, organise, store, manipulate and retrieve digital content.

KS2:

- 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.

Year A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Years 1 and 2	Technology around us	Digital painting	Moving a robot	Grouping data	Digital writing	Programming animations
Years 3 and 4	Connecting computers	Stop-frame animation	Sequencing sounds	Branching databases	Desktop publishing	Events and actions in programs
Years 5 and 6	Systems and searching	Video production	Selection in physical computing	Flat-file databases	Introduction to vector graphics	Selection in quizzes

Year B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Years 1 and 2	IT around us	Digital photography	Robot algorithms	Pictograms	Digital music	Programming quizzes
Years 3 and 4	The internet	Audio production	Repetition in shapes	Data logging	Photo editing	Repetition in games
Years 5 and 6	Communication and collaboration	Webpage creation	Variables in games	Introduction to spreadsheets	3D modelling	Sensing movement

Digital literacy	
Technology around us	
1.1.1 - I can identify technology	Technology, computer, mouse, trackpad, keyboard, screen, double-click, typing
1.1.2 - I can identify a computer and its main parts	
1.1.3 - I can use a mouse in different ways	
1.1.4 - I can use a keyboard to type	
1.1.5 - I can use the keyboard to edit text	
1.1.6 - I can identify rules to keep us safe	

IT around us	
2.1.1 - I can identify examples of computers	Information technology (IT), barcode, scanner/scan
2.1.2 - I can move and resize images	
2.1.3 - I can find examples of information technology	
2.1.4 - I can explain how information technology helps people	
2.1.5 - I can recognise how to use information technology responsibly	
2.1.6 - I can explain simple guidance for using information technology	

Computer science (systems and networks)	
Connecting computers	
3.1.1 - I can explain how digital devices function	Digital device, input, process, output, program, digital, non-digital, connection, network, network switch, server, wireless access point, network cables, network sockets
3.1.2 - I can identify input and output devices	
3.1.3 - I recognise how digital devices change the way we work	
3.1.4 - I can explain how networks share information	
3.1.5 - I can explore how digital devices can be connected	
3.1.6 - I can recognise the physical components of a network	
The internet	
4.1.1 - I can describe how networks physically connect	Internet, router, network security, wireless access point, website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, content, download, sharing, ownership, permission, accurate, information, honest, adverts
4.1.2 - I can recognise networked devices make up the internet	
4.1.3 - To outline how websites can be shared via the World Wide Web	
4.1.4 - I can describe how content is added and accessed on the World Wide Web	
4.1.5 - I can recognise content is created by people	
4.1.6 - I understand the consequences of unreliable content	
Systems and searching	
5.1.1 - I can explain that systems are built using a number of parts	System, connection, digital, search, search engine, refine, index, crawler, bot, ordering, ranking, links, algorithm, search engine optimisation (SEO), web crawler, creator, selection, ranking
5.1.2 - I can recognise the role of computer systems in our lives	
5.1.3 - I can explain that data is transferred over networks in packets	
5.1.4 - I can explain that the internet allows different media to be shared	
5.1.5 - I can contribute to a shared project online	
5.1.6 - I can identify different ways of working together online	
Communication and collaboration	
6.1.1 - I can compare results from different search engines	Communication, protocol, data, address, Internet Protocol (IP) address, Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, public, private, one-way, two-way, one-to-one, one-to-many
6.1.2 - I can recognise the role of web crawlers in creating an index	
6.1.3 - I can explain how search results are ranked	
6.1.4 - I can describe some of the ways that search results can be influenced	
6.1.5 - I can recognise how we communicate using technology	
6.1.6 - I can evaluate different methods of online communication	

Computer science (programming)	
Moving a robot	
1.3.1 - I can predict the outcome of a command	Forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, plan, algorithm, program, route
1.3.2 - I can follow an instruction	
1.3.3 - I can predict the outcome of a sequence	
1.3.4 - I can compare left and right turns	
1.3.5 - I can choose the order of commands in a sequence	
1.3.6 - I can find more than one solution to a problem	

Programming animations	
1.6.1 - I can use commands to move a sprite	Sprite, compare, programming, programming area, block, start block, run, background, delete, reset, predict, effect, change, value, appropriate, design, programming blocks
1.6.2 - I can use more than one block by joining them together	
1.6.3 - I can find blocks which have numbers	
1.6.4 - I can add blocks to each of my sprites	
1.6.5 - I can create an algorithm	
1.6.6 - I can test the programs I have created	

Robot algorithms	
2.3.1 - I can describe a series of instructions as a sequence	Sequence, unambiguous, order, prediction, artwork, design, debugging, decomposition
2.3.2 - I can use an algorithm to program a sequence	
2.3.3 - I can predict the outcome of a sequence	
2.3.4 - I can explain that programming projects can have code and algorithm	
2.3.5 - I can use my algorithm to create a program	
2.3.6 - I can debug a program that I have written	

Programming quizzes	
2.6.1 - I can identify the start of a sequence	Actions, project, modify, change, compare, features, evaluate
2.6.2 - I can predict the outcome of a sequence of commands	
2.6.3 - I can create a program using a given design	
2.6.4 - I can change a given design	
2.6.5 - I can create an algorithm	
2.6.6 - I can debug	

Sequencing sounds	
3.3.1 - I can explore a new programming environment	Code, costume, stage, backdrop, motion, turn, point in direction, go to, glide, event, task, code, run the code, note, chord, bug
3.3.2 - I can create a program following a design	
3.3.3 - I can create a sequence of connected commands	
3.3.4 - I can explain what a sequence is	
3.3.5 - I can change the appearance of my project	
3.3.6 - I can implement my algorithm as code	

Events and actions in programs	
3.6.1 - I can explain the relationship between an event and an action	Logic, resize, extension block, set up pen, errors
3.6.2 - I can program movement	
3.6.3 - I can choose blocks to set up my program	
3.6.4 - I can develop my program by adding features	
3.6.5 - I can identify and fix bugs	
3.6.6 - I can make design choices and justify them	

Repetition in shapes	
4.3.1 - I know accuracy in programming is important	Code snippet, pattern, repeat, repetition, count-controlled loop, trace, decompose, procedure
4.3.2 - I can create a program in a text-based language	
4.3.3 - I can identify everyday tasks that include repetition	
4.3.4 - I can modify a count-controlled loop to produce a given outcome	
4.3.5 - I can decompose a program	
4.3.6 - I can create count-controlled loops	

Repetition in games	
4.6.1 - I can predict the outcome of a snippet of code	Value, infinite loop, animate, duplicate, refine
4.6.2 - I can choose when to use a count-controlled and an infinite loop	
4.6.3 - I can explain what the outcome of the repeated action should be	
4.6.4 - I can modify an infinite loop in a given program	
4.6.5 - I can design a project that includes repetition	
4.6.6 - I can refine the algorithm in my design	

Selection in physical computing	
5.3.1 - I can control a simple circuit connected to a computer	Microcontroller, components, connection, output component, motor, crumble controller, switch, motor, LED, sparkle, crocodile clips, connect, battery box, input, output, selection, condition, action,
5.3.2 - I can write a program with count-controlled loops	
5.3.3 - I can experiment with a 'do until' loop	
5.3.4 - I can identify a condition and an action in my project	
5.3.5 - I can identify a condition to start an action (real world)	
5.3.6 - I can use selection to produce an intended outcome	

Selection in quizzes	
5.6.1 - I can explain how selection is used in computer programs	True, false, conditional statement, question, answer, task, implement, test, run, setup
5.6.2 - I can explain conditional statements connect a condition to an outcome	
5.6.3 - I can explain how selection directs the flow of a program	
5.6.4 - I can design a program which uses selection	
5.6.5 - I can implement my algorithm to create the first section of my program	
5.6.6 - I can identify ways the program could be improved	

Variables in games	
6.3.1 - I can define a 'variable'	Variable, change, name, set, improve, share
6.3.2 - I can explain why a variable is used in a program	
6.3.3 - I can make use of an event in a program to set a variable	
6.3.4 - I can design a project that modifies a given example	
6.3.5 - I can use my design to create a project	
6.3.6 - I can evaluate my project	

Sensing movement	
6.6.1 - I can apply my knowledge of programming to a new environment	Micro:bit, MakeCode, process, flashing, USB, trace, if then else, variable, random, sensing, accelerometer, compass, direction, navigation, step counter
6.6.2 - I can use a variable in an if… then… else… statement to select the flow of a program	
6.6.3 - I can use a condition to change a variable	
6.6.4 - I can modify a program to achieve a different outcome	
6.6.5 - I can decide what variables to include in a project	
6.6.6 - I can test my program against my design	

Information technology (data and information)	
Grouping data	
1.4.1- I can describe objects using labels	Object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, the same
1.4.2- I can count a group of objects	
1.4.3- I can find objects with similar properties	
1.4.4- I can count objects with the same properties	
1.4.5- I can compare groups of objects	
1.4.6- I can answer questions about groups of objects	

Pictograms	
2.4.1- I can record data in a tally chart	More than, less than, least, organise, data, tally chart, votes, total, pictogram, enter, compare, count, explain, more common, least common, attribute, group, same, different, most popular, least popular, conclusion, block diagram, sharing
2.4.2- I can use pictograms to answer simple questions	
2.4.3- I can create a pictogram	
2.4.4- I can create a pictogram to arrange objects by an attribute	
2.4.5- I can create a pictogram and draw conclusions from it	
2.4.6- I can use a computer program to present information in different ways	

Branching databases	
3.4.1- I can create questions with yes/no answers	Value, questions, table, objects, branching database, database, equal, even, separate, structure, order, organise, selecting, information, decision tree
3.4.2- I can select an attribute to separate objects	
3.4.3- I can group objects using my own yes/no questions	
3.4.4- I can identify objects using a branching database	
3.4.5- I can explain why databases need structure	
3.4.6- To compare the information shown in a pictogram with a branching database	

Data logging	
4.4.1- I can identify data that can be gathered over time	Layout, input device, sensor, data logger, logging, data point, interval, analyse, import, export, collection, analyse, review, conclusion
4.4.2- I can explain that sensors are input devices	
4.4.3- I can identify the intervals used to collect data	
4.4.4- I can use a computer program to sort data	
4.4.5- I can use a data logger to collect data	
4.4.6- I can draw conclusions from the data that I have collected	

Flat-file databases	
5.4.1- I can use a form to record information	Record, field, sort, order, group Database, data, field, record, search, criteria, graph, chart, axis, filter, presentation
5.4.2- I can explain what a ‘field’ and a ‘record’ is in a database	
5.4.3- I can group information to answer questions	
5.4.4- I can choose multiple criteria to answer a given question	
5.4.5- I can select an appropriate chart to visually compare data	
5.4.6- I can refine a search in a real-world context	

Introduction to spreadsheets	
6.4.1- I can answer questions from an existing data set	Spreadsheet, cell, cell reference, data item, format, formula, calculation, input, output, calculate, operation, range, duplicate, sigma, propose, organised, evaluate, results, comparison, questions, software, tools
6.4.2- I can apply an appropriate number format to a cell	
6.4.3- I can construct a formula in a spreadsheet	
6.4.4- I can apply a formula to multiple cells by duplicating it	
6.4.5- I can apply a formula to calculate the data I need to answer questions	
6.4.6- I can choose suitable ways to present data	

Information technology (graphics)	
Digital writing	
1.5.1- I can identify and find keys on a keyboard	Word processor, keyboard, keys, letters, type, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, mouse, select, font, undo, redo, format, compare, typing, writing
1.5.2- I can add and remove text on a computer	
1.5.3- I can type capital letters	
1.5.4- I can select all of the text by clicking and dragging	
1.5.5- I can use 'undo' to remove changes	
1.5.6- I can write a message on a computer and on paper	

Desktop publishing	
3.5.1- I can explain the difference between text and images	Text, images, advantages, disadvantages, communicate, font style, communicate, template, landscape, portrait, orientation, placeholder, layout, content, desktop publishing, copy, paste, purpose, benefits
3.5.2- I can format text	
3.5.3- I can choose appropriate page settings	
3.5.4- I can make changes to content after I've added it	
3.5.5- I can consider how different layouts can suit different purposes	
3.5.6- I can identify the uses of desktop publishing in the real world	

Webpage creation	
6.2.1- I know that websites are written in HTML	Website, browser, media, Hypertext Markup Language (HTML), webpage, logo, header, media, copyright, fair use, home page, preview, evaluate, device, breadcrumb trail, navigation, hyperlink, subpage, hyperlink, evaluate, implication, external link, embed
6.2.2- I can plan the features of a web page	
6.2.3- I can consider the ownership and copyright	
6.2.4- I can recognise the need to preview pages	
6.2.5- I can make multiple web pages and link them using hyperlinks	
6.2.6- I can evaluate the user experience of a website	

Digital painting	
1.2.1- I can use the paint tools to draw a picture	Paint program, tool, paintbrush, erase, fill, undo, primary colours, shape tools, line tool, fill tool, undo tool, feelings, colour, brush style, pointillism, brush size, pictures, painting, computers, like, prefer, dislike
1.2.2- I can use the shape and line tools effectively	
1.2.3- I can choose appropriate shapes	
1.2.4- I know that different paint tools do different jobs	
1.2.5- I can change the colour and brush sizes	
1.2.6- I can say whether I prefer painting using a computer or using paper	

Introduction to vector graphics	
5.5.1- I can identify the main drawing tools	Vector, drawing tools, object, toolbar, drawing, move, resize, rotate, duplicate, copy, zoom, select, align, modify, layers, order, copy, paste, group, ungroup, reuse, reflection, vector drawing
5.5.2- I can create a vector drawing by combining shapes	
5.5.3- I can modify objects to create different effects	
5.5.4- I recognise that vector drawings consist of layers	
5.5.5- I can group to create a single object	
5.5.6- I can create alternatives to vector drawings	

3D modelling	
6.5.1- I can select, move, and delete a digital 3D shape	2D, 3D, shapes, perspective, view, handles, lift, lower, recolour, cylinder, placeholder, hollow, 3D shapes, choose, combine, construct, evaluate, modify
6.5.2- I can identify how graphical objects can be modified	
6.5.3- I can select and duplicate multiple 3D objects	
6.5.4- I can identify the 3D shapes needed to create a model of a real-world object	
6.5.5- I can modify multiple 3D objects	
6.5.6- I can evaluate my model against a given criterion	

Digital photography	
2.2.1- I can capture digital photos	Device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, lighting
2.2.2- I can take photos in both landscape and portrait format	
2.2.3- I can discuss how to take a good photograph	
2.2.4- I can explore the effect that light has on a photo	
2.2.5- I can recognise that images can be edited	
2.2.6- I can apply a range of photography skills to capture a photo	

Stop-frame animation	
3.2.1- I can explain animation is a sequence of images	Animation, flip book, stop-frame animation, frame, sequence, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition
3.2.2- I can create an effective stop frame animation	
3.2.3- I can plan an animation	
3.2.4- I can evaluate the quality of my work	
3.2.5- I can provide and listen to feedback	
3.2.6- I can evaluate the impact of mixing medias	

Photo editing	
4.5.1- I can explain that digital images can be edited	Edit, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, retouch, clone, select, copy, paste, combine, made up, real, composite, cut, alter, background, foreground, crop, zoom, font
4.5.2- I can adjust the composition of an image	
4.5.3- I can describe how images can be changed for different uses	
4.5.4- I can choose appropriate tools to retouch an image	
4.5.5- I can sort images into ‘fake’ or ‘real’	
4.5.6- I can evaluate how changes can improve an image	

Information technology (audio/video)	
Digital music	
2.5.1- I can say how music can change emotions	Music, planets, war, peace, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, notes, instrument, create, beat, open, edit
2.5.2- I can identify that there are patterns in music	
2.5.3- I can use a computer to experiment with pitch and duration	
2.5.4- I can identify that music is a sequence of notes	
2.5.5- I can create music for a purpose	
2.5.6- I can explain improved my work better	

Audio production	
4.2.1- I can identify digital devices that can record sound and play it back	Audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, edit, selection, load, save, export, MP3, evaluate, feedback
4.2.2- I can use a digital device to record sound	
4.2.3- I can explain a digital recording is stored as a file	
4.2.4- I can explain audio can be edited	
4.2.5- I can use editing tools to arrange sections of audio	
4.2.6- I can evaluate editing choices made:	

Video production	
5.2.1- I can plan a video project using a storyboard	Video, audio, camera, talking head, panning, close up, video camera, microphone, lens, close up, mid-range, long shot, moving subject, side by side, high angle, low angle, normal angle, static camera, zoom, pan, tilt, storyboard, filming, review, split, trim, clip, reshoot, delete, trim, reorder, share
5.2.2- I can identify digital devices that can record video	
5.2.3- I can capture video using a digital device	
5.2.4- I can recognise the features of an effective video	
5.2.5- I can explain how to improve a video by reshooting and editing	
5.2.6- I can make edits to my video and improve the final outcome	