Computing Knowledge Map

	Computing systems and networks Digital literacy	Creating media Information technology		Data and information Information technology	Programming Computer science	
Year 1	Technology Around Us	Digital Painting	Digital Writing	Grouping Data	Moving a Robot	Programming Animations
	Lesson 1: Technology in our classroom	Lesson 1: How can we paint using computers?	Lesson 1: Exploring the keyboard	Lesson 1: Label and match	Lesson 1: Buttons	Lesson 1: Comparing tools
	• I can explain how these technology examples help us • I can explain technology as something that helps us • I can locate examples of technology in the classroom	• I can draw lines on a screen and explain which tools I used • I can make marks on a screen and explain which tools I used • I can use the paint tools to draw a picture	• I can identify and find keys on a keyboard • I can open a word processor • I can recognise keys on a keyboard	• I can describe objects using labels • I can identify the label for a group of objects • I can match objects to groups	• I can match a command to an outcome • I can predict the outcome of a command on a device • I can run a command on a device	• I can compare different programming tools • I can find which commands to move a sprite • I can use commands to move a sprite
	Lesson 2: Using technology	Lesson 2: Using shapes and lines	Lesson 2: Adding and removing text	Lesson 2: Group and count	Lesson 2: Directions	Lesson 2: Joining blocks
	• I can name the main parts of a computer • I can switch on and log into a computer • I can use a mouse to click and drag	• I can make marks with the square and line tools • I can use the shape and line tools effectively • I can use the shape and line tools to recreate the work of an artist	• I can enter text into a computer • I can use backspace to remove text • I can use letter, number, and space keys	• I can count a group of objects • I can count objects • I can group objects	• I can follow an instruction • I can give directions • I can recall words that can be acted out	• I can run my program • I can use a Start block in a program • I can use more than one block by joining them together
	Lesson 3: Developing mouse skills	Lesson 3: Making careful choices	Lesson 3: Exploring the toolbar	Lesson 3: Describe an object	Lesson 3: Forwards and backwards	Lesson 3: Make a change
	• I can click and drag to make objects on a screen • I can use a mouse to create a picture • I can use a mouse to open a program	• I can choose appropriate shapes • I can create a picture in the style of an artist • I can make appropriate colour choices	• I can explain what the keys that I have learnt about already do • I can identify the toolbar and use bold, italic, and underline • I can type capital letters	• I can describe an object • I can describe a property of an object • I can find objects with similar properties	• I can compare forwards and backwards movements • I can predict the outcome of a sequence involving forwards and backwards commands • I can start a sequence from the same place	• I can change the value • I can find blocks that have numbers • I can say what happens when I change a value
	Lesson 4: Using a computer keyboard	Lesson 4: Why did I choose that?	Lesson 4: making changes to text	Lesson 4: Making different groups	Lesson 4: Four directions	Lesson 4: Adding sprites
	• I can save my work to a file • I can say what a keyboard is for • I can type my name on a computer	• I can choose appropriate paint tools and colours to recreate the work of an artist • I can say which tools were helpful and why • I know that different paint tools do different jobs	• I can change the font • I can select all of the text by clicking and dragging • I can select a word by double clicking	• I can count how many objects share a property • I can group objects in more than one way • I can group similar objects	• I can compare left and right turns • I can experiment with turn and move commands to move a robot • I can predict the outcome of a sequence involving up to four commands	• I can add blocks to each of my sprites • I can delete a sprite • I can show that a project can include more than one sprite
	Lesson 5: Developing keyboard skills	Lesson 5: Painting all by myself	Lesson 5: Explaining my choices	Lesson 5: Comparing groups	Lesson 5: Getting there	Lesson 5: Project design
	• I can delete letters • I can open my work from a file • I can use the arrow keys to move the cursor	• I can change the colour and brush sizes • I can make dots of colour on the page • I can use dots of colour to create a picture in the style of an artist on my own	• I can decide if my changes have improved my writing • I can say what tool I used to change the text • I can use 'undo' to remove changes	• I can choose how to group objects • I can describe groups of objects • I can record how many objects are in a group	• I can choose the order of commands in a sequence • I can debug my program • I can explain what my program should do	• I can choose appropriate artwork for my project • I can create an algorithm for each sprite • I can decide how each sprite will move
	Lesson 6: Using a computer responsibly	Lesson 6: Comparing computer art and painting	Lesson 6: Pencil or keyboard	Lesson 6: Answering questions	Lesson 6: Routes	Lesson 6: Following my design
	• I can discuss how we benefit from these rules • I can give examples of some of these rules • I can identify rules to keep us safe and healthy when we are using technology in and beyond the home	• I can explain that pictures can be made in lots of different ways • I can say whether I prefer painting using a computer or using paper • I can spot the differences between painting on a computer and on paper	• I can explain the differences between typing and writing • I can make changes to text on a computer • I can say why I prefer typing or writing	• I can compare groups of objects • I can decide how to group objects to answer a question • I can record and share what I have found	• I can identify several possible solutions • I can plan two programs • I can use two different programs to get to the same place	• I can add programming blocks based on my algorithm • I can test the programs I have created • I can use sprites that match my design
	Vocabulary					
	Technology, computer, mouse, trackpad, keyboard, screen, double-click, typing	paint program, tool, paintbrush, erase, fill, undo, Piet Mondrian, primary colours, shape tools, line tool, fill tool, Henri Matisse, Wassily Kandinsky, feelings, colour, brush style, Georges Seurat, Pointillism, brush size, Pictures, painting, computers, like, prefer, dislike	Word processor, keyboard, keys, letters, Microsoft Word, Google Docs, numbers, space, backspace, text cursor, toolbar, bold, italic, underline, mouse, cursor, select, font, undo, font, backspace	Object, label, group, search, image, property, colour, size, shape, value, label, data set, more, less, most, fewest, the same	Forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, turn, plan, algorithm, program, route	ScratchJr, Bee-Bot, command, sprite, compare, programming, programming area, block, joining, command, Start block, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, appropriate, design	
	Formative Assessment					
	Assessment opportunities are incorporated into each lesson. The learning objective and success criteria are introduced and then reviewed at the end. Learners assess how well they have met the learning objective in a variety of ways.					

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	Computing systems and networks Digital literacy	Creating media Information technology		Data and information Information technology	Programming Computer science	
Year 2	IT all around us	Digital Photography	Digital Music	Pictograms	Robot algorithms	Programming quizzes
	Lesson 1: What is IT? • I can describe some uses of computers • I can identify examples of computers • I can identify that a computer is a part of IT	Lesson 1: Taking photographs • I can explain what I did to capture a digital photo • I can recognise what devices can be used to take photographs • I can talk about how to take a photograph	Lesson 1: How music makes us feel • I can describe music using adjectives • I can identify simple differences in pieces of music • I can say what I do and don't like about a piece of music	Lesson 1: Counting and comparing • I can compare totals in a tally chart • I can record data in a tally chart • I can represent a tally count as a total	Lesson 1: Giving instructions • I can choose a series of words that can be enacted as a sequence • I can follow instructions given by someone else • I can give clear instructions	Lesson 1: ScratchJr recap • I can identify that a program needs to be started • I can identify the start of a sequence • I can show how to run my program
	Lesson 2: IT in school • I can identify examples of IT • I can identify that some IT can be used in more than one way • I can sort school IT by what it's used for	Lesson 2: Landscape or portrait? • I can explain the process of taking a good photograph • I can explain why a photo looks better in portrait or landscape format • I can take photos in both landscape and portrait format	Lesson 2: Rhythms and patterns • I can create a rhythm pattern • I can explain that music is created and played by humans • I can play an instrument following a rhythm pattern	Lesson 2: Enter the data • I can enter data onto a computer • I can use a computer to view data in a different format • I can use pictograms to answer simple questions about objects	Lesson 2: Same but different • I can show the difference in outcomes between two sequences that consist of the same commands • I can use an algorithm to program a sequence on a floor robot • I can use the same instructions to create different algorithms	Lesson 2: Outcomes • I can change the outcome of a sequence of commands • I can match two sequences with the same outcome • I can predict the outcome of a sequence of commands
	Lesson 3: IT in the world • I can find examples of information technology • I can sort IT by where it is found • I can talk about uses of information technology	Lesson 3: What makes a good photograph? • I can discuss how to take a good photograph • I can identify what is wrong with a photograph • I can improve a photograph by retaking it	Lesson 3: How music can be used • I can connect images with sounds • I can relate an idea to a piece of music • I can use a computer to experiment with pitch	Lesson 3: Creating pictograms • I can explain what the pictogram shows • I can organise data in a tally chart • I can use a tally chart to create a pictogram	Lesson 3: Making predictions • I can compare my prediction to the program outcome • I can follow a sequence • I can predict the outcome of a sequence	Lesson 3: Using a design • I can build the sequences of blocks I need • I can decide which blocks to use to meet the design • I can work out the actions of a sprite in an algorithm
	Lesson 4: The benefits of IT • I can demonstrate how IT devices work together • I can recognise common types of technology • I can say why we use IT	Lesson 4: Lighting • I can experiment with different light sources • I can explain why a picture may be unclear • I can explore the effect that light has on a photo	Lesson 4: Notes and tempo • I can explain how my music can be played in different ways • I can identify that music is a sequence of notes • I can refine my musical pattern on a computer	Lesson 4: What is an attribute? • I can answer 'more than'/'less than' and 'most/least' questions about an attribute • I can create a pictogram to arrange objects by an attribute • I can tally objects using a common attribute	Lesson 4: Mats and routes • I can explain the choices I made for my mat design • I can identify different routes around my mat • I can test my mat to make sure that it is usable	Lesson 4: Changing a design • I can choose backgrounds for the design • I can choose characters for the design • I can create a program based on the new design
	Lesson 5: Using IT safely • I can list different uses of information technology • I can say how rules can help keep me safe • I can talk about different rules for using IT	Lesson 5: Effects • I can explain my choices • I can recognise that images can be changed • I can use a tool to achieve a desired effect	Lesson 5: Creating digital music • I can add a sequence of notes to my rhythm • I can create a rhythm which represents an animal I've chosen • I can create my animal's rhythm on a computer	Lesson 5: Comparing people • I can choose a suitable attribute to compare people • I can collect the data I need • I can create a pictogram and draw conclusions from it	Lesson 5: Algorithm design • I can create an algorithm to meet my goal • I can explain what my algorithm should achieve • I can use my algorithm to create a program	Lesson 5: Designing and creating a program • I can build sequences of blocks to match my design • I can choose the images for my own design • I can create an algorithm
	Lesson 6: Using IT in different ways • I can explain the need to use IT in different ways • I can identify the choices that I make when using IT • I can use IT for different types of activities	Lesson 6: Is it real? • I can apply a range of photography skills to capture a photo • I can identify which photos are real and which have been changed • I can recognise which photos have been changed	Lesson 6: Reviewing and editing music • I can explain how I changed my work • I can listen to music and describe how it makes me feel • I can review my work	Lesson 6: Presenting information • I can give simple examples of why information should not be shared • I can share what I have found out using a computer • I can use a computer program to present information in different ways	Lesson 6: Debugging • I can plan algorithms for different parts of a task • I can put together the different parts of my program • I can test and debug each part of the program	Lesson 6: Evaluating • I can compare my project to my design • I can debug my program • I can improve my project by adding features
	Vocabulary					
	Information technology (IT), computer, barcode, scanner/scan	Device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, lighting, focus	Music, planets, Mars, Venus, war, peace, quiet, loud, feelings, emotions, pattern, rhythm, pulse, Neptune, pitch, tempo, notes, instrument, create, pulse/beat, open, edit	More than, less than, most, least, organise, data, object, tally chart, votes, total, enter, compare, count, pictogram, explain, more common, least common, attribute, group, same, different most popular, least popular, conclusion, block diagram, sharing, data	Instruction, sequence, clear, unambiguous, algorithm, program, order, algorithm, commands, prediction, artwork, design, route, mat, debugging	Sequence, command, program, run, start, outcome, predict, blocks, sprite, algorithm, design, actions, project, design, modify, change, build, match, compare, debug, features, evaluate
	Formative Assessment					
	Assessment opportunities are incorporated into each lesson. The learning objective and success criteria are introduced and then reviewed at the end. Learners assess how well they have met the learning objective in a variety of ways.					

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	Computing systems and networks Digital literacy	Creating media Information technology		Data and information Information technology	Programming Computer science	
Year 3	Connecting computers	Stop-frame animation	Desktop publishing	Branching databases	Sequencing sounds	Events and actions in programs
	Lesson 1: How does a digital device work? • I can explain that digital devices accept inputs • I can explain that digital devices produce outputs • I can follow a process	Lesson 1: Can a picture move? • I can create an effective flip book—style animation • I can draw a sequence of pictures • I can explain how an animation/flip book works	Lesson 1: Words and pictures • I can explain the difference between text and images • I can identify the advantages and disadvantages of using text and images • I can recognise that text and images can communicate messages clearly	Lesson 1: Yes or no questions • I can create two groups of objects separated by one attribute • I can investigate questions with yes/no answers • I can make up a yes/no question about a collection of objects	Lesson 1: Introduction to scratch • I can explain that objects in Scratch have attributes (Year 2) • I can identify the objects in a Scratch project (sprites, backdrops) • I can recognise that commands in Scratch are represented as blocks	Lesson 1: Moving a sprite • I can choose which keys to use for actions and explain my choices • I can explain the relationship between an event and an action • I can identify a way to improve a program
	Lesson 2: What parts make up a digital device? • I can classify input and output devices • I can describe a simple process • I can design a digital device	Lesson 2: Frame by frame • I can create an effective stop frame animation • I can explain why little changes are needed for each frame • I can predict what an animation will look like	Lesson 2: Can you edit it? • I can change font style, size, and colours for a given purpose • I can edit text • I can explain that text can be changed to communicate more clearly	Lesson 2: Making groups • I can arrange objects into a tree structure • I can create a group of objects within an existing group • I can select an attribute to separate objects into groups	Lesson 2: Programming sprites • I can choose a word which describes an onscreen action for my plan • I can create a program following a design • I can identify that each sprite is controlled by the commands I choose	Lesson 2: Maze movement • I can choose a character for my project • I can choose a suitable size for a character in a maze • I can program movement
	Lesson 3: How do digital devices help us? • I can explain how I use digital devices for different activities • I can recognise similarities between using digital devices and non-digital tools • I can suggest differences between using digital devices and non-digital tools	Lesson 3: What's the story? • I can break down a story into settings, characters and events • I can create a storyboard • I can describe an animation that is achievable on screen	Lesson 3: Great template! • I can create a template for a particular purpose • I can define the term 'page orientation' • I can recognise placeholders and say why they are important	Lesson 3: Creating a branching database • I can group objects using my own yes/no questions • I can select objects to arrange in a branching database • I can test my branching database to see if it works	Lesson 3: Sequences • I can create a sequence of connected commands • I can explain that the objects in my project will respond exactly to the code • I can start a program in different ways	Lesson 3: Drawing lines • I can choose blocks to set up my program • I can consider the real world when making design choices • I can use a programming extension
	Lesson 4: How am I connected? • I can discuss why we need a network switch • I can explain how messages are passed through multiple connections • I can recognise different connections	Lesson 4: Picture perfect • I can evaluate the quality of my animation • I can review a sequence of frames to check my work • I can use onion skinning to help me make small changes between frames	Lesson 4: Can you add content? • I can choose the best locations for my content • I can make changes to content after I've added it • I can paste text and images to create a magazine cover	Lesson 4: Structuring a branching database • I can compare two branching database structures • I can create yes/no questions using given attributes • I can explain that questions need to be ordered carefully to split objects into similarly sized groups	Lesson 4: Ordering commands • I can combine sound commands • I can explain what a sequence is • I can order notes into a sequence	Lesson 4: Adding features • I can build more sequences of commands to make my design work • I can choose suitable keys to turn on additional features • I can identify additional features (from a given set of blocks)
	Lesson 5: How are computers connected? • I can demonstrate how information can be passed between devices • I can explain the role of a switch, server, and wireless access point in a network • I can recognise that a computer network is made up of a number of devices	Lesson 5: Evaluate and make it great! • I can evaluate another learner's animation • I can explain ways to make my animation better • I can improve my animation based on feedback	Lesson 5: Lay it out • I can choose a suitable layout for a given purpose • I can identify different layouts • I can match a layout to a purpose	Lesson 5: Using a branching database • I can create a physical version of a branching database • I can create questions that will enable objects to be uniquely identified • I can independently create questions to use in a branching database	Lesson 5: Looking good • I can build a sequence of commands • I can decide the actions for each sprite in a program • I can make design choices for my artwork	Lesson 5: Debugging movement • I can match a piece of code to an outcome • I can modify a program using a design • I can test a program against a given design
	Lesson 6: what does our school network look like? • I can identify how devices in a network are connected together • I can identify networked devices around me • I can identify the benefits of computer networks	Lesson 6: Lights, camera, action! • I can add other media to my animation • I can evaluate my final film • I can explain why I added other media to my animation	Lesson 6: Why desktop publishing? • I can compare work made on desktop publishing to work created by hand • I can identify the uses of desktop publishing in the real world • I can say why desktop publishing might be helpful	Lesson 6: Two ways of presenting information • I can create a branching database that reflects my plan • I can suggest real world uses for branching databases • I can work with a partner to test my identification tool	Lesson 6: Making an instrument • I can identify and name the objects I will need for a project • I can implement my algorithm as code • I can relate a task description to a design	Lesson 6: Making a project • I can evaluate my project • I can implement my design • I can make design choices and justify them
	Vocabulary					
	Digital device, input, output, process, process, pictogram, connection, network, network switch, server, wireless access point	Animation, flip book, stop-frame animation, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition	Text, images, advantages, disadvantages, communicate, font, font style, communicate, template, landscape, portrait, orientation, placeholder, layout, content, desktop publishing, copy, paste, purpose, benefits	Branching database, database, attribute, value, questions, objects, equal, even, separate, structure, compare, order, organise, j2data, selecting, pictogram, information, decision tree	Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, task, design, code, run the code, order, note, chord, stage, costume, backdrop, design, algorithm, bug, debug	Motion, event, sprite, algorithm, logic, move, resize, algorithm, extension block, pen up, set up, pen, design, event, action, debugging, errors, design, code, test
	Composite task					
	Summative assessment on Teach Computing	Create a story-based animation using the Rubric	Create a magazine front cover using the Rubric	Summative assessment on Teach Computing	Create a representation of a piano using a Rubric	Summative assessment on Teach Computing

Computing Knowledge Map

	Computing systems and networks Digital literacy	Creating media Information technology		Data and information Information technology	Programming Computer science	
	The internet	Audio Production	Photo Editing	Data logging	Repetition in shapes	Repetition in games
Year 4	Lesson 1: Connecting networks • I can describe the internet as a network of networks • I can demonstrate how information is shared across the internet • I can discuss why a network needs protecting	Lesson 1: Digital Recoding • I can identify the input and output devices used to record and play sound • I can use a computer to record audio • I can explain that the person who records the sound can say who is allowed to use it	Lesson 1: Changing image details • I can improve an image by rotating it • I can explain why I might crop an image • I can use photo editing software to crop an image	Lesson 1: Answering questions • I can choose a data set to answer a given question • I can suggest questions that can be answered using a given data set • I can identify data that can be gathered over time	Lesson 1: Programming a turtle • I can program a computer by typing commands • I can explain the effect of changing a value of a command • I can create a code snippet for a given purpose	Lesson 1: Using loops to create shapes • I can list an everyday task as a set of instructions including repetition • I can predict the outcome of a snippet of code • I can modify a snippet of code to create a given outcome
	Lesson 2: What is the internet made of? • I can describe networked devices and how they connect • I can explain that the internet is used to provide many services • I can recognise that the World Wide Web contains websites and web pages	Lesson 2: Recording sounds • I can re-record my voice to improve my recording • I can inspect the soundwave view to know where to trim my recording • I can discuss what sounds can be added to a podcast	Lesson 2: Changing the composition of images • I can explain that different colour effects make you think and feel different things • I can experiment with different colour effects • I can explain why I chose certain colour effects	Lesson 2: Data collection • I can explain what data can be collected using sensors • I can use data from a sensor to answer a given question • I can identify that data from sensors can be recorded	Lesson 2: Programming letters • I can use a template to create a design for my program • I can write an algorithm to produce a given outcome • I can test my algorithm in a text-based language	Lesson 2: Different loops • I can modify loops to produce outcome • I can choose when to use a count-controlled and an infinite loop • I can recognise that some programming languages enable more than one process to be run at once
	Lesson 3: Sharing information • I can describe where websites are stored when uploaded to the WWW • I can describe how to access websites on the WWW • I can explain the types of media that can be shared on the WWW	Lesson 3: Creating a podcast • I can explain how sounds can be combined to make a podcast more engaging • I can save my project so the different parts remain editable • I can plan content for a podcast	Lesson 3: Changing images for different uses • I can add to the composition of an image by cloning • I can identify how a photo edit can be improved • I can remove parts of an image using cloning	Lesson 3: Logging • I can recognise that a data logger collects data at given points • I can identify the intervals used to collect data • I can talk about the data that I have captured	Lesson 3: Patters and repeats • I can identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves • I can identify patterns in a sequence • I can use a count-controlled loop to produce a given outcome	Lesson 3: Animate your name • I can choose which action will be repeated for each object • I can explain what the outcome of the repeated action should be • I can evaluate the effectiveness of the repeated sequences used in my program
	Lesson 4: What is a website? • I can explain what media can be found on websites • I can recognise that I can add content to the WWW • I can explain that internet services can be used to create content online	Lesson 4: Editing digital recordings • I can record content following my plan • I can review the quality of my recordings • I can improve my voice recordings	Lesson 4: Retouching images • I can experiment with tools to select and copy part of an image • I can use a range of tools to copy between images • I can explain why photos might be edited	Lesson 4: Analysing data • I can view data at different levels of detail • I can sort data to find information • I can explain that there are different ways to view data	Lesson 4: Using loops to create shapes • I can identify the effect of changing the number of times a task is repeated • I can predict the outcome of a program containing a count-controlled loop • I can choose which values to change in a loop	Lesson 4: Modifying a game • I can identify which parts of a loop can be changed • I can explain the effect of my changes • I can re-use existing code snippets on new sprites
	Lesson 5: Who owns the web? • I can explain that websites and their content are created by people • I can suggest who owns the content on websites • I can explain that there are rules to protect content	Lesson 5: Combining audio • I can open my project to continue working on it • I can arrange multiple sounds to create the effect I want • I can explain the difference between saving a project and exporting an audio file	Lesson 5: Fake images • I can describe the image I want to create • I can choose suitable images for my project • I can create a project that is a combination of other images	Lesson 5: Data for answers • I can propose a question that can be answered using logged data • I can plan how to collect data using a data logger • I can use a data logger to collect data	Lesson 5: Breaking things down • I can identify 'chunks' of actions in the real world • I can use a procedure in a program • I can explain that a computer can repeatedly call a procedure	Lesson 5: Designing a game • I can evaluate the use of repetition in a project • I can select key parts of a given project to use in my own design • I can develop my own design explaining what my project will do
	Lesson 6: Can't believe what I read? • I can explain that not everything on the World Wide Web is true • I can explain why some information I find online may not be honest, accurate, or legal • I can explain why I need to think carefully before I share or reshare content	Lesson 6: Evaluating podcasts • I can listen to an audio recording to identify its strengths • I can suggest improvements to an audio recording • I can choose appropriate edits to improve my podcast	Lesson 6: Making and evaluating a publication • I can review images against a given criteria • I can use feedback to guide making changes • I can combine text and my image to complete the project	Lesson 6: Answering my question • I can interpret data that has been collected using a data logger • I can draw conclusions from the data that I have collected • I can explain the benefits of using a data logger	Lesson 6: Creating a program • I can design a program that includes count-controlled loops • I can make use of my design to write a program • I can develop my program by debugging it	Lesson 6: Creating a game • I can refine the algorithm in my design • I can build a program that follows my design • I can evaluate the steps I followed when building my project
	Vocabulary					
	Internet, network, router, network security, network switch, server, wireless access point, website, web page, web address, routing, browser, World Wide Web, content, website, links, files, use, content, download, sharing, ownership, permission, Information, sharing, accurate, honest, content, adverts	Audio, record, playback, microphone, speaker, headphones, input, output, sound, start, pause, stop, podcast, save, file, edit, selection, open, mixing, time shift, export, MP3, audio, editing, evaluate, feedback	Image, edit, arrange, select, digital, crop, undo, save, search, save, copyright, composition, pixels, crop, rotate, flip, adjustments, effects, colours, hue/saturation, sepia, version, illustrator, vignette, retouch, clone, recolour, magic wand, adjust, sharpen, brighten, fake, real, composite, cut, copy, paste, alter, background, foreground, publication, elements, original, font style, shapes, border, layer	Data, table (layout), input device, sensor, data logger, logging, data point, interval, analyse, data set, import, export, data, data logger, logged, collection, review, conclusion	Program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, value, decompose, procedure	Scratch, programming, sprite, blocks, code, loop, repeat, value, block, repeat, forever, infinite loop, count-controlled loop, costume, repetition, forever, infinite loop, count-controlled loop, animate, costume, event block, duplicate, repeat, forever, modify, design, sprite, algorithm, duplicate, debug, refine, evaluate
	Composite task					
	Summative assessment on Teach Computing	Create a podcast using the Rubric	Editing a photo for a publication and evaluating using the Rubric	Creating an enquiry using one or more sensors using the Rubric	Summative assessment on Teach Computing	Create a game using a Rubric

Computing Knowledge Map

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Year 5	Systems and searching	Video production	Vector graphics	Flat-file database	BBC Musical micro:bit	Selection in quizzes
	Lesson 1: Systems	Lesson 1: What is video?	Lesson 1: The drawing tools	Lesson 1: Creating a paper-based database	Lesson 1: Musical algorithms	Lesson 1: Exploring conditions
	• I can explain that systems are built using a number of parts • I can describe that a computer system features inputs, processes, and outputs • I can explain that computer systems communicate with other devices	• I can explain that video is a visual media format • I can identify features of videos • I can compare features in different videos	• I can recognise that vector drawings are made using shapes • I can experiment with the shape and line tools • I can discuss how vector drawings are different from paper-based drawings	• I can create a database using cards • I can explain how information can be recorded • I can order, sort, and group my data cards	• To read and interpret a range of algorithms • To evaluate algorithms • To write algorithms for a given audience	• I can recall how conditions are used in selection • I can identify conditions in a program • I can modify a condition in a program
	Lesson 2: Computer systems and us	Lesson 2: Filming techniques	Lesson 2: Creating images	Lesson 2: Computer databases	Lesson 2: Programming & debugging music	Lesson 2: Selecting outcomes
	• I can identify tasks that are managed by computer systems • I can identify the human elements of a computer system • I can explain the benefits of a given computer system	• I can identify and find features on a digital video recording device • I can experiment with different camera angles • I can make use of a microphone	• I can identify the shapes used to make a vector drawing • I can explain that each element added to a vector drawing is an object • I can move, resize, and rotate objects I have duplicated	• I can explain what a field and a record is in a database • I can navigate a flat-file database to compare different views of information • I can choose which field to sort data by to answer a given question	• To use existing knowledge to improve programs • To write and debug musical programs • To experiment (tinker) with the micro:bit to make music	• I can use selection in an infinite loop to check a condition • I can identify the condition and outcomes • I can create a program with different outcomes using selection
	Lesson 3: Searching the web	Lesson 3: Using a storyboard	Lesson 3: Making effective drawings	Lesson 3: Using a database	Lesson 3: Musical gestures	Lesson 3: Asking questions
	• I can make use of a web search to find specific information • I can refine my web search • I can compare results from different search engines	• I can suggest filming techniques for a given purpose • I can capture video using a range of filming techniques • I can review how effective my video is	• I can use the zoom tool to help me add detail to my drawings • I can explain how alignment grids and resize handles can be used • I can modify objects to create a new image	• I can explain that data can be grouped using chosen values • I can group information using a database • I can combine grouping and sorting to answer specific questions	• To analyse and modify algorithms • To identify patterns in algorithms • To write algorithms using repetition and selection	• I can explain that program flow can branch according to a condition • I can design the flow of a program which contains 'if… then… else…' • I can show that a condition can direct program flow in one of two ways
	Lesson 4: Selecting search results	Lesson 4: Planning a video	Lesson 4: Layers and objects	Lesson 4: Using search tools	Lesson 4: Controlling music with inputs	Lesson 4: Planning a quiz
	• I can explain why we need tools to find things online • I can recognise the role of web crawlers in creating an index • I can relate a search term to the search engine's index	• I can outline the scenes of my video • I can decide which filming techniques I will use • I can create and save video content	• I can identify that each added object creates a new layer in the drawing • I can change the order of layers in a vector drawing • I can use layering to create an image	• I can choose which field and value are required to answer a given question • I can outline how 'AND' and 'OR' can be used to refine data selection • I can choose multiple criteria to answer a given question	• To identify how inputs are used in programs • To write programs that use inputs and selection	• I can outline a given task • I can use a design format to outline my project • I can identify the outcome of user input in an algorithm
	Lesson 5: How search results are ranked	Lesson 5: Importing and editing video	Lesson 5: Manipulating objects	Lesson 5: Comparing data visually	Lesson 5: Controlling music with inputs	Lesson 5: Testing a quiz
	• I can order a list by rank • I can explain that a search engine follows rules to rank results • I can give examples of criteria used by search engines to rank results	• I can store, retrieve, and export my recording to a computer • I can explain how to improve a video by reshooting and editing • I can select the correct tools to make edits to my video	• I can copy part of a drawing by duplicating several objects • I can recognise when I need to group and ungroup objects • I can reuse a group of objects to further develop my vector drawing	• I can select an appropriate chart to visually compare data • I can refine a chart by selecting a particular filter • I can explain the benefits of using a computer to create charts	• To continue to write programs that use inputs and selection • To write and evaluate algorithms	• I can implement my algorithm to create the first section of my program • I can test my program • I can share my program with others
	Lesson 6: How are searches influenced	Lesson 6: Video evaluation	Lesson 6: Creating a vector drawing	Lesson 6: Databases in real life	Lesson 6: Evaluating micro:bit music	Lesson 6: Evaluating a quiz
	• I can describe some of the ways that search results can be influenced • I can recognise some of the limitations of search engines • I can explain how search engines make money	• I can make edits to my video and improve the final outcome • I can recognise that my choices when making a video will impact on the quality of the final outcome • I can evaluate my video and share my opinions	• I can create a vector drawing for a specific purpose • I can reflect on the skills I have used and why I have used them • I can compare vector drawings to freehand paint drawings	• I can ask questions that will need more than one field to answer • I can refine a search in a real-world context • I can present my findings to a group	• To modify programs to meet given criteria • To decompose learning from the unit • To evaluate the micro:bit as a music-making device	• I can identify ways the program could be improved • I can identify the setup code I need in my program • I can extend my program further
	Vocabulary					
	System, connection, digital, input, process, output, protocol, address, packet, chat, explore, slide deck, reuse, remix, collaboration	Video, audio, recording, storyboard, script, soundtrack, dialogue, capture, zoom, storage, digital, tape, audio, AV (audio-visual), save, videographer, video techniques: Zoom, pan, tilt, angle, lighting, setting, YouTuber, content, light, audio/sound, camera angle, colour, Export, computer, Microsoft Movie Maker, split, trim/clip, edit, titles, end credits, timeline, transitions, soundtrack, content, retake/reshoot (choose agreed language), special effects, title screen, end credits, export, constructive feedback	Vector, drawing tools, shapes, object, icons, toolbar, object, move, resize, colour, rotate, duplicate/copy, organise, zoom, select, rotate, alignment grid, resize, handles, consistency, modify, layers, object, front, back, order, copy, paste, group, ungroup, duplicate, reuse, improvement, evaluate, alternatives,	Database, data, information, record, field, sort, order, group, search, value, criteria, chart, axis, compare, filter, graph, chart, presentation	Microcontroller, micro:bit, components, LED, crocodile clips, connect, battery box, program, repetition, infinite loop, output devices, motor, count-controlled loop, switch, condition, true, false, input, selection, condition, action, task, design, selection, condition, algorithm, program, debug, evaluate	Selection, condition, true, false, count-controlled loop, outcomes, conditional statement (the linking together of a condition and outcomes), algorithm, program, debug, question, answer, debug, task, design, input, implement, design, test, run, test, setup, share, evaluate, constructive
	Composite task					
	Summative assessment on Teach Computing	Create a story telling video and evaluate	Create a card using vector drawings	Summative assessment on Teach Computing	Write an algorithm that uses selection to control a sequence using output devices	Summative assessment on Teach Computing

Computing Knowledge Map

	Computing systems and networks Digital literacy	Creating media Information technology		Data and information Information technology	Programming Computer science	
Year 6	Communication and collaboration	Web page creation	3D modelling	Introduction to spreadsheets	Variables in games	Sensing movement
	Lesson 1: Internet addresses	Lesson 1: What makes a good website?	Lesson 1: Introduction to 3D modelling	Lesson 1: What is a spreadsheet?	Lesson 1: Introducing variables	Lesson 1: The micro:bit
	• I can recognise that data is transferred using agreed methods • I can explain that internet devices have addresses • I can describe how computers use addresses to access websites	• I can explore a website • I can discuss the different types of media used on websites • I know that websites are written in HTML	• I can add 3D shapes to a project • I can view 3D shapes from different perspectives • I can move 3D shapes relative to one another	• I can collect data • I can suggest how to structure my data • I can enter data into a spreadsheet	• I can identify examples of information that is variable • I can explain that the way a variable change can be defined • I can identify that variables can hold numbers or letters	• I can apply my knowledge of programming to a new environment • I can test my program on an emulator • I can transfer my program to a controllable device
	Lesson 2: Data packets	Lesson 2: How would you layout a web page?	Lesson 2: Modifying 3D objects	Lesson 2: Modifying spreadsheets	Lesson 2: Variables in programming	Lesson 2: Go with the flow
	• I can identify and explain the main parts of a data packet • I can explain that data is transferred over networks in packets • I can explain that all data transferred over the internet is in packets	• I can recognise the common features of a web page • I can suggest media to include on my page • I can draw a web page layout that suits my purpose	• I can resize an object in three dimensions • I can lift/lower 3D objects • I can recolour a 3D object	• I can explain what an item of data is • I can choose an appropriate format for a cell • I can apply an appropriate format to a cell	• I can identify a program variable as a placeholder in memory for a single value • I can explain that a variable has a name and a value • I can recognise that the value of a variable can be changed	• I can identify examples of conditions in the real world • I can use a variable in an if, then, else statement to select the flow of a program • I can determine the flow of a program using selection
	Lesson 3: Working together	Lesson 3: Copyright or CopyWRONG?	Lesson 3: Make your own name badge	Lesson 3: What's the formula?	Lesson 3: Improving a game	Lesson 3: Sensing outputs
	• I can recognise how to access shared files stored online • I can send information over the internet in different ways • I can explain that the internet allows different media to be shared	• I can say why I should use copyright-free images • I can find copyright-free images • I can describe what is meant by the term 'fair use'	• I can rotate objects in three dimensions • I can duplicate 3D objects • I can group 3D objects	• I can explain which data types can be used in calculations • I can construct a formula in a spreadsheet • I can identify that changing inputs changes outputs	• I can decide where in a program to change a variable • I can make use of an event in a program to set a variable • I can recognise that the value of a variable can be used by a program	• I can use a condition to change a variable • I can experiment with different physical inputs • I can explain that checking a variable doesn't change its value
	Lesson 4: Shared working	Lesson 4: How does it look?	Lesson 4: Making a desk tidy	Lesson 4: Calculate and duplicate	Lesson 4: Designing a game	Lesson 4: Finding your way
	• I can identify different ways of working together online • I can recognise that working together on the internet can be public or private • I can explain how the internet enables effective collaboration	• I can add content to my own web page • I can preview what my web page looks like • I can evaluate what my web page looks like on different devices and suggest/make edits	• I can accurately size 3D objects • I can show that placeholders can create holes in 3D objects • I can combine a number of 3D objects	• I can calculate data using different operations • I can create a formula which includes a range of cells • I can apply a formula to multiple cells by duplicating it	• I can decide where in a program to change a variable • I can make use of an event in a program to set a variable • I can recognise that the value of a variable can be used by a program	• I can use an operand (e.g. <>=) in an if, then statement • I can explain the importance of the order of conditions in else, if statements • I can modify a program to achieve a different outcome
	Lesson 5: How we communicate	Lesson 5: Follow the breadcrumbs	Lesson 5: Planning a 3D model	Lesson 5: Event planning	Lesson 5: Design to code	Lesson 5: Designing a step counter
	• I can explain the different ways in which people communicate • I can identify that there are a variety of ways to communicate over the internet • I can choose methods of communication to suit particular purposes	• I can explain what a navigation path is • I can describe why navigation paths are useful • I can make multiple web pages and link them using hyperlinks	• I can analyse a 3D model • I can choose objects to use in a 3D model • I can combine objects in a design	• I can use a spreadsheet to answer questions • I can explain why data should be organised • I can apply a formula to calculate the data I need to answer questions	• I can create the artwork for my project • I can choose a name that identifies the role of a variable • I can test the code that I have written	• I can decide what variables to include in a project • I can design the algorithm for my project • I can design the program flow for my project
	Lesson 6: Communicating responsibly	Lesson 6: Think before you link!	Lesson 6: Make your own 3D model	Lesson 6: Presenting data	Lesson 6: Improving and sharing	Lesson 6: Making a step counter
	• I can compare different methods of communicating on the internet • I can decide when I should and should not share information online • I can explain that communication on the internet may not be private	• I can explain the implication of linking to content owned by others • I can create hyperlinks to link to other people's work • I can evaluate the user experience of a website	• I can construct a 3D model based on a design • I can explain how my 3D model could be improved • I can modify my 3D model to improve it	• I can produce a chart • I can use a chart to show the answer to questions • I can suggest when to use a table or chart	• I can decide where in a program to change a variable • I can make use of an event in a program to set a variable • I can recognise that the value of a variable can be used by a program	• I can create a program based on my design • I can test my program against my design • I can use a range of approaches to find and fix bugs
	Vocabulary					
	Search, search engine, Google, Bing, Yahoo!, Swisscows, DuckDuckGo, refine, index, crawler, bot, search engine, ranking, optimisation, links, content creator, selection, communication, internet, public, private, one-way, two-way, one-to-one, one-to-many, SMS, email, WhatsApp, blog, YouTube, Twitter, BBC Newsround	Website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage, hyperlink, implication, external link, embed	2D, 3D, 3D object, 3D space, view, resize, colour, lift, rotate, position, select, duplicate, dimensions, placeholder, hole, group, ungroup, resize, ungroup, design, modify, evaluate, improve	Spreadsheet, data, data heading, data set, cells, columns and rows, data item, data set, object, spreadsheet application, format, common attribute, formula, calculation, input, output, cell reference, calculate, operation, cell, range, duplicate, sigma, propose, question, organised, graph, chart, evaluate, results, comparison, questions, software, tools	Variable, change, name, value, set, design, event, algorithm, code, task, algorithm, artwork, program, project, code, test, debug, improve, evaluate, share	Micro:bit, MakeCode, input, process, output, flashing, USB, selection, condition, if then else, variable, random, input, selection, condition, variable, sensing, accelerometer, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug
	Composite task					
	Summative assessment on Teach Computing	Design and evaluate their own website using Google Sites	Plan, develop and evaluate a 3D model of a building	Summative assessment on Teach Computing	Summative assessment on Teach Computing	Making and evaluating a step counter