

Computing Subject Overview

Year 1						
	Autumn 1 Technology around us	Autumn 2 Digital painting	Spring 1 Moving a robot	Spring 2 Grouping data	Summer 1 Digital writing	Summer 2 Programming animation
E-Safety	To explore different ways of searching for information Question it: Lesson 2	To learn when it is a good time to use screens Balance it: Lesson 2	To understand what information should not be shared online Mind it: Lesson 3	To understand how the internet is used for communication Chat it: Lesson 2	To understand the signs when something is wrong and to know what to do Think it: Lesson 2	To describe the way that some people can be unkind online Feel it: Lesson 1
Lesson objectives	To identify technology	To describe what different freehand tools do	To explain what a given command will do	To label objects	To use a computer to write	To choose a command for a given purpose
	To identify a computer and its main parts	To use the shape tool and the line tools	To act out a given word	To identify that objects can be counted	To add and remove text on a computer	To show that a series of commands can be joined together
	To use a mouse in different ways	To make careful choices when painting a digital picture	To combine forwards and backwards commands to make a sequence	To describe objects in different ways	To identify that the look of text can be changed on a computer	To identify the effect of changing a value

	To use a keyboard to type on a computer	To explain why I chose the tools I used	To combine four direction commands to make sequences	To count objects with the same properties	To make careful choices when changing text	To explain that each sprite has its own instructions
	To use the keyboard to edit text	To use a computer on my own to paint a picture	To plan a simple program	To compare groups of objects	To explain why I used the tools that I chose	To design the parts of a project
	To create rules for using technology responsibly	To compare painting a picture on a computer and on paper	To find more than one solution to a problem	To answer questions about groups of objects	To compare typing on a computer to writing on paper	To use my algorithm to create a program
Vocabulary	<i>technology, computer, mouse, trackpad, keyboard, screen, double-click, typing.</i>	<i>paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers</i>	<i>Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program.</i>	<i>object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same</i>	<i>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.</i>	<i>ScratchJr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design.</i>
E-safety links to be taught within main lessons	Managing Online Information <u>I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened.</u> Self-image and Identity <u>If something happens that makes me feel sad, worried, uncomfortable or frightened I can give examples of when and how to speak to an adult I can trust and how they can help.</u>					

	Health, well-being and lifestyle • <u>I can explain rules to keep myself safe when using technology both in and beyond the home.</u> Copyright and ownership • <u>I can save my work under a suitable title or name so that others know it belongs to me (e.g. filename, name on content).</u>
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Year 2						
	Autumn 1 Information technology around us	Autumn 2 Digital photography	Spring 1 Robot algorithms	Spring 2 Pictograms	Summer 1 Digital music	Summer 2 Programming quizzes
E-Safety	To understand that some information we find online may not be true Question it : Lesson 3	To understand why online and offline time need to be balanced Balance it: Lesson 1	To explain how information put online about me can last for a long time Mind it: Lesson 1	To be able to communicate safely with people we don't know Chat it: Lesson 2	To understand why it is important to seek help from trusted adults Think it: Lesson 2	To identify and describe bullying behaviour and how it can look online Feel it: Lesson 1
Lesson objectives	To recognise the uses and features of information technology	To use a digital device to take a photograph	To describe a series of instructions as a sequence	To recognise that we can count and compare objects using tally charts	To say how music can make us feel	To explain that a sequence of commands has a start
	To identify the uses of information technology in the school	To make choices when taking a photograph	To explain what happens when we change the order of instructions	To recognise that objects can be represented as pictures	To identify that there are patterns in music	To explain that a sequence of commands has an outcome
	To identify information technology beyond school	To describe what makes a good photograph	To use logical reasoning to predict the outcome of a program	To create a pictogram	To experiment with sound using a computer	To create a program using a given design

	To explain how information technology helps us	To decide how photographs can be improved	To explain that programming projects can have code and artwork	To select objects by attribute and make comparisons	To use a computer to create a musical pattern	To change a given design
	To explain how to use information technology safely	To use tools to change an image	To design an algorithm	To recognise that people can be described by attributes	To create music for a purpose	To create a program using my own design
	To recognise that choices are made when using information technology	To recognise that photos can be changed	To create and debug a program that I have written	To explain that we can present information using a computer	To review and refine our computer work	To decide how my project can be improved
Vocabulary	<i>Information technology (IT), computer, barcode, scanner/scan</i>	<i>device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting,</i>	<i>instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition</i>	<i>more than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total, pictogram, enter, data, compare, objects, count, explain, attribute, group, same, different, conclusion, block diagram, sharing</i>	<i>music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit.</i>	<i>sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code.</i>
E-safety links to be taught within main lessons	Health, well-being, and lifestyle I can <u>say how those rules / guides can help anyone accessing online technologies</u>					

	• Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies
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Year 3						
	Autumn 1 Connecting computers	Autumn 2 Stop-frame animation	Spring 1 Sequencing sounds	Spring 2 Branching databases	Summer 1 Desktop publishing	Summer 2 Events and actions in programs
E-safety	To explain the difference between a belief, an opinion and a fact Question it: Lesson 3	To explore and identify what we need to stay healthy and happy Balance it: Lesson 2	To understand the need to be careful with the type information shared online Mind it: Lesson 2	To know what to do when we feel uncomfortable or upset by familiar or unfamiliar people Chat it: Lesson 3	To identify and describe safe online sharing through the exploration of real-life and online identity Think it: Lesson 1	To explore cyberbullying and describe how our actions online affect others Feel it: Lesson 1
Lesson objectives	To explain how digital devices function	To explain that animation is a sequence of drawings or photographs	To explore a new programming environment	To create questions with yes/no answers	To recognise how text and images convey information	To explain how a sprite moves in an existing project
	To identify input and output devices	To relate animated movement with a sequence of images	To identify that commands have an outcome	To identify the attributes needed to collect data about an object	To recognise that text and layout can be edited	To create a program to move a sprite in four directions
	To recognise how digital devices can change the way we work	To plan an animation	To explain that a program has a start	To create a branching database	To choose appropriate page settings	To adapt a program to a new context

	To explain how a computer network can be used to share information	To identify the need to work consistently and carefully	To recognise that a sequence of commands can have an order	To explain why it is helpful for a database to be well structured	To add content to a desktop publishing publication	To develop my program by adding features
	To explore how digital devices can be connected	To review and improve an animation	To change the appearance of my project	To plan the structure of a branching database	To consider how different layouts can suit different purposes	To identify and fix bugs in a program
	To recognise the physical components of a network	To evaluate the impact of adding other media to an animation	To create a project from a task description	To independently create an identification tool	To consider the benefits of desktop publishing	To design and create a maze-based challenge
Vocabulary	<i>digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets</i>	<i>animation, flip book, stopframe, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition.</i>	<i>Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, task, design, run the code, order, note, chord, algorithm, bug, debug, code.</i>	<i>attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree.</i>	<i>text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits.</i>	<i>motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test, debug, actions.</i>
E-safety links to be taught within main lessons	Privacy and Security - I can describe simple strategies for creating and keeping passwords private. - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact					

- Don't share personal info like your full name, address, or phone number. Also, don't share details about where you go to school or your social media accounts.

Managing online information

- I can use key phrases in search engines
- I can use search technologies effectively

Copyright and ownership

- When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it
- I can demonstrate the use of search tools to find and access online content which can be reused by others.

Year 4						
	Autumn 1 The internet	Autumn 2 Audio production	Spring 1 Repetition in shapes	Spring 2 Data logging	Summer 1 Photo editing	Summer 2 Repetition in games
E-safety	To understand that AI can be biased and why fairness is important in AI decisions Question it: Lesson 2	To understand the importance of sleep for our physical and mental health Balance it: Lesson 2	To understand how online posts last forever Mind it: Lesson 3	To understand ways to communicate online Chat it: Lesson 3	To know who to turn to in certain situations Think it: Lesson 3	To understand the behaviours that are considered online bullying Feel it: Lesson 2
Lesson objectives	To describe how networks physically connect to other networks	To identify that sound can be recorded	To identify that accuracy in programming is important	To explain that data gathered over time can be used to answer questions	To explain that the composition of digital images can be changed	To develop the use of count-controlled loops in a different programming environment
	To recognise how networked devices make up the internet	To explain that audio recordings can be edited	To create a program in a text-based language	To use a digital device to collect data automatically	To explain that colours can be changed in digital images	To explain that in programming there are infinite loops and count controlled loops
	To outline how websites can be shared via the	To recognise the different parts of	To explain what 'repeat' means	To explain that a data logger collects	To explain how cloning can be used in photo editing	To develop a design that includes two or

	World Wide Web (WWW)	creating a podcast project		'data points' from sensors over time		more loops which run at the same time
	To describe how content can be added and accessed on the World Wide Web (WWW)	To recognise the different parts of creating a podcast project	To modify a count-controlled loop to produce a given outcome	To recognise how a computer can help us analyse data	To explain that images can be combined	To modify an infinite loop in a given program
	To recognise how the content of the WWW is created by people	To combine audio to enhance my podcast project	To decompose a task into small steps	To identify the data needed to answer questions	To combine images for a purpose	To design a project that includes repetition
	To evaluate the consequences of unreliable content	To evaluate the effective use of audio	To create a program that uses count-controlled loops to produce a given outcome	To use data from sensors to answer questions	To evaluate how changes can improve an image	To create a project that includes repetition
Vocabulary	<i>internet, network, router, security, switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information,</i>	<i>audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback.</i>	<i>Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure.</i>	<i>data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion.</i>	<i>image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine, made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, undo, font.</i>	<i>Scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate.</i>

	<i>accurate, honest, content, adverts</i>					
E-safety links to be taught within main lessons	Managing online information • I can analyse information to make a judgement about probable accuracy, and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others. • I can explain what is meant by fake news, e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't. Online relationships • Pupils should know how information and data is shared and used online Internet safety and Harms • Pupils should know how to be a discerning consumer of information online • Pupils should know that for most people the internet is an integral part of life and has many benefits					

Year 5						
	Autumn 1 Systems and searching	Autumn 2 Video production	Spring 1 Selection in physical computing	Spring 2 Flat-file databases	Summer 1 Vector graphics	Summer 2 Selection in quizzes
E-safety	To explore how accurate and reliable the information we see online is. Question it: Lesson 2	I understand that we can use technology to support our health and wellbeing. Balance it: Lesson 2	To describe how information found online can be used to make judgements about individuals. Mind it: Lesson 2	To understand how to choose appropriate online groups to join and how to make positive contribution Chat it: Lesson 2	To consider reasons why someone might create a fake profile and how our online identities can be copied Think it: Lesson 3	To understand how we can support one another with online concerns, such as cyberbullying. Feel it: Lesson 2
Lesson objectives	To explain that computers can be connected together to form systems	To explain what makes a video effective	To control a simple circuit connected to a computer	To use a form to record information	To identify that drawing tools can be used to produce different outcomes	To explain how selection is used in computer programs
	To recognise the role of computer systems in our lives	To identify digital devices that can record video	To write a program that includes count-controlled loops	To compare paper and computer-based databases	To create a vector drawing by combining shapes	To relate that a conditional statement connects a condition to an outcome
	To experiment with search engines	To capture video using a range of techniques	To explain that a loop can stop when a condition is met	To outline how you can answer questions by grouping and then sorting data	To use tools to achieve a desired effect	To explain how selection directs the flow of a program

	To describe how search engines select results	To create a storyboard	To explain that a loop can be used to repeatedly check whether a condition has been met	To explain that tools can be used to select specific data	To recognise that vector drawings consist of layers	To design a program which uses selection
	To explain how search results are ranked	To identify that video can be improved through reshooting and editing	To design a physical project that includes selection	To explain that computer programs can be used to compare data visually	To group objects to make them easier to work with	To create a program which uses selection
	To recognise why the order of results is important, and to whom	To consider the impact of the choices made when making and sharing a video	To create a program that controls a physical computing project	To use a real-world database to answer questions	To apply what I have learned about vector drawings	To evaluate my program
Vocabulary	<i>system, connection, digital, input, process, storage, output, search, search engine, refine, index, bot, ordering, links, algorithm, search engine optimisation (SEO), web crawler, content creator, selection, ranking.</i>	<i>vector, drawing tools, object, toolbar, vector drawing, move, resize, colour, rotate, duplicate/copy, zoom, select, align, modify, layers, order, copy, paste, group, ungroup, reuse, reflection</i>	<i>microcontroller, USB, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, Input, output, selection, action, debug, circuit, power, cell, buzzer</i>	<i>database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation.</i>	<i>video, audio, camera, talking head, panning, close up, video camera, microphone, lens, mid-range, long shot, moving subject, side by side, angle (high, low, normal), static, zoom, pan, tilt, storyboard, filming, review, import, split, trim, clip, edit, reshoot, delete,</i>	<i>Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator</i>

					<i>reorder, export, evaluate, share.</i>	
E-safety links to be taught within main lessons	Managing Online Information • I can explain the benefits and limitations of using different types of search technologies e.g. voice-activation search engine. I can explain how some technology can limit the information I am presented with. Privacy and Security • I can explain what a strong password is and demonstrate how to create one Internet safety and Harms • Pupils should know how to be a discerning consumer of information online, including that from search engines, is ranked, selected and targeted					

Year 6						
	Autumn 1 Communication and collaboration	Autumn 2 Webpage creation	Spring 1 Variables in games	Spring 2 Introduction to spreadsheets	Summer 1 3D modelling	Summer 2 Sensing movement
E-Safety	To consider the difference between facts and opinions in digital content. Question it: Lesson 2	I can identify and resist online temptations and pressures. Balance it: Lesson 1	To understand how an information trail is created and how that contributes to my digital footprint. Mind it: Lesson 2	To recognise the problems that can come with sharing information online. Chat it: Lesson 2	To understand inequality, prejudice and discrimination online. Think it: Lesson 1	To know how to gather evidence of online bullying and what to do with the evidence. Feel it: Lesson 2
Lesson objectives	To explain the importance of internet addresses	To review an existing website and consider its structure	To define a 'variable' as something that is changeable	To create a data set in a spreadsheet	To recognise that you can work in three dimensions on a computer	To create a program to run on a controllable device
	To recognise how data is transferred across the internet	To plan the features of a web page	To explain why a variable is used in a program	To build a data set in a spreadsheet	To identify that digital 3D objects can be modified	To explain that selection can control the flow of a program
	To explain how sharing information online can help people to work together	To consider the ownership and use of images (copyright)	To choose how to improve a game by using variables	To explain that formulas can be used to produce calculated data	To recognise that objects can be combined in a 3D model	To update a variable with a user input

	To evaluate different ways of working together online	To recognise the need to preview pages	To design a project that builds on a given example	To apply formulas to data	To create a 3D model for a given purpose	To use a conditional statement to compare a variable to a value
	To recognise how we communicate using technology	To outline the need for a navigation path	To use my design to create a project	To create a spreadsheet to plan an event	To plan my own 3D model	To design a project that uses inputs and outputs on a controllable device
	To evaluate different methods of online communication	To recognise the implications of linking to content owned by other people	To evaluate my project	To choose suitable ways to present data	To create my own digital 3D model	To develop a program to use inputs and outputs on a controllable device
Vocabulary	<i>communication, protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, internet, public, private, oneway, two-way, one-to-one, one-to-many</i>	<i>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, evaluate, implication, external link, embed.</i>	<i>variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare</i>	<i>data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, spreadsheet, input, output, operation, range, duplicate, sigma, propose, question, data set, organised, chart, evaluate, results, sum, comparison, software, tools</i>	<i>TinkerCAD, 2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, rotate, duplicate, group, cylinder, cube, cuboid, sphere, cone, prism, pyramid, placeholder, hollow, choose, combine, construct, evaluate, modify</i>	<i>Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug.</i>

E-safety links to be taught within main lessons	Managing Online Information • I can identify, flag and report inappropriate content Self-image and identity • I can describe issues online that could make anyone feel sad, worried, uncomfortable or frightened. I know and can give examples of how to get help, both on and offline Online relationships • Pupils should know how information and data is shared and used online Internet safety and Harms ∉ Pupils should know that for most people the internet is an integral part of life and has many benefits ∉ Pupils should know where and how to report concerns and get support with issues online 7 Copyright and ownership • I can demonstrate the use of search tools to find and access online content which can be reused by others.
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