**Computing Subject Overview**

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| **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 | *technology, computer, mouse, trackpad, keyboard, screen, double-click, typing.* | *paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers* | *Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program.* | *object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same* | *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.* | *ScratchJr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design.* |
| E-safety links to be taught within main lessons | Managing Online Information* [I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened.](https://projectevolve.co.uk/toolkit/resources/content/managing-online-information/early-years-7/i-know-how-to-get-help-from-a-trusted-adult-if-we-see-content-that-makes-us-feel-sad-uncomfortable-worried-or-frightened/?from=years)

 Self-image and Identity* [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.](https://projectevolve.co.uk/toolkit/resources/content/self-image-and-identity/early-years-7/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/?from=years)

 Health, well-being and lifestyle* [I can explain rules to keep myself safe when using technology both in and beyond the home.](https://projectevolve.co.uk/toolkit/resources/content/health-well-being-and-lifestyle/early-years-7/i-can-explain-rules-to-keep-myself-safe-when-using-technology-both-in-and-beyond-the-home/?from=years)

Copyright and ownership* [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).](https://projectevolve.co.uk/toolkit/resources/content/copyright-and-ownership/early-years-7/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/?from=years)
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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 | *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, framing, lighting,* | *instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition* | *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* | *music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit.* | *sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code.* |
| E-safety links to be taught within main lessons | Health, well-being, and lifestyle* I can [say how those rules / guides can help anyone accessing online technologies](https://projectevolve.co.uk/toolkit/resources/content/health-well-being-and-lifestyle/early-years-7/i-can-say-how-those-rules-guides-can-help-anyone-accessing-online-technologies/?from=years)
* 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 | *digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets* | *animation, flip book, stopframe, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition.* | *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.* | *attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree.* | *text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits.* | *motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test, debug, actions.* |
| 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.
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| **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 World Wide Web (WWW) | To recognise the different parts of creating a podcast project | To explain what ‘repeat’ means | To explain that a data logger collects ‘data points’ from sensors over time | To explain how cloning can be used in photo editing | To develop a design that includes two or 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 | *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, accurate, honest, content, adverts* | *audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback.* | *Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure.* | *data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion.* | *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.* | *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.* |
| 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
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| **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 | *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.* | *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* | *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* | *database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation.* | *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, reorder, export, evaluate, share.* | *Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator* |
| 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
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| **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 | *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* | *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.* | *variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare* | *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* | *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* | *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.* |
| 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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