



Computing Knowledge Progression 'At Worthington We Will Know.....'



	Computer systems and networks	Internet safety
Nursery		
	I can explore how things work including a Beebot I can watch the whiteboard and use some programmes that are touch sensitive e.g. Numberblocks games	I know I must not use the internet by myself
	Vocabulary Beebot, programme, Whiteboard	Vocabulary Internet
Reception		
	I can use the whiteboard to complete tasks on programmes such as topmark maths I know that I can find information using the IPAD, laptop, whiteboard to access search engines and apps such as google, goggle earth	I know that I need to ask an adult for help when using the internet
	Vocabulary Whiteboard , touch, drag	Vocabulary internet information
Year One	How can I log on and off on the computer?	How does Smartie the Penguin help us to stay safe on the computer?
	I know how to switch on a computer. I know how to log on and shut down safely. I can use a mouse – left click and right click -move the curser -click and drag. I know how to open and close programs. I know how to use a keyboard - space bar, back space and enter	I know how to use my knowledge of e-safety when researching a topic with support. I know what SMART stands for when being safe online.
	Vocabulary Monitor, display, keyboard, mouse, trackpad, system unit, headphones, switch. Launch, application, window, minimise, restore, size, move, screen, close, exit.	Vocabulary Digital footprint, online citizen, bullying, teasing, e-safety, password.
Year Two	How do computers help us?	How can I use the computer safely?
	Computers and other digital devices are forms of information technology (IT).	Information shared online creates a digital footprint. Search engines and keywords can be used to find information online.

	IT is used in school, at home and in the wider world for different purposes. Different types of technology can work together to help people complete tasks. Technology can be used in different ways depending on the activity. Rules help people use technology safely and responsibly.	Not all websites are useful, trustworthy or suitable. Unkind behaviour can happen online and should be reported to a trusted adult. They should seek help if something online makes them feel uncomfortable.
	Vocabulary Information technology, computer, barcode, scanner/scan	Vocabulary Digital footprint, trail, e-safety, online, website, advert, content, social media, post, public. Key word, search, internet
Year Three	How do computers connect to make networks?	How do I stay safe online?
	Understand the difference between inputs and outputs; Explain how digital devices are used for different purposes; Understand that networks connect devices to share information; Recognise the role and benefits of networks in everyday life.	Understand how to stay safe and respectful online; Use passwords and privacy settings to protect personal information; Communicate safely using online tools such as email; Recognise online advertising and its purpose; Understand the opportunities and risks of online communities.
	Vocabulary Input, Output, process, device, wires, server, wireless access points, network switch, network sockets, network cables.	Vocabulary Email, comment, cyberbullying, secure, private, advert, settings
Year Four	What is the Internet?	Do I know how to prevent cyberbullying?
	Networked devices are those connected together. The internet is a network of networks. Information is shared across the internet through routers and switches. Websites are stored on computers or in data centres. Websites are accessed on the World Wide Web through a web browser. Websites and their content are created by people. I can add content to the World Wide Web. The content on websites is owned by their hosts, and accessible by all. Not everything on the World Wide Web is true.	Communicate respectfully and responsibly online; Use search tools to find reliable information; Understand the importance of citing sources and respecting copyright; Keep personal information safe online; Demonstrate good digital citizenship.

	Some information I find online may not be honest, accurate, or legal because it can be uploaded by anyone.	
	Vocabulary Internet, network, router, network security, switch, server, wireless access point, website, web page, web address, web browser, World Wide Web, content, links, files, download, sharing, ownership, permission, information, sharing, accurate, honest, content, adverts.	Vocabulary Online, cyberbullying, e-safety, search engine, keywords, synonyms, results, plagiarism, citations/cite, profiles, social media, account, register, private, public, digital citizenship, responsibility.
Year Five	How can I use a search engine effectively? Search engines use processes such as web crawling and indexing to find and organise information. Keywords and search techniques can be used to improve search results. Not all online information is reliable, and websites should be evaluated for trustworthiness. Trusted websites are important for finding accurate information. Advanced search tools, such as Boolean operators, can refine search results.	How can I stay safe online? Spam emails can be identified and may pose risks to users. Sources should be acknowledged and cited when using information from others. Strong passwords help to keep accounts and personal information secure. Digital images can be edited and altered, so online media should be viewed critically. Online safety rules help people make safe and responsible choices when using technology.
	Vocabulary Browser, Internet, search engine, network, search results, search terms, URL, web browser, web page, website, World Wide Web (www)., Boolean operators, Domain name, protocol, reliability, scheme, second-level domain, secure, subdomain, top-level domain, trustworthy, URL, Search Engine Optimisation (SEO), search engine results page, Web crawler, spider, web indexing, index, search engine index, hyperlink, marketing, server, user, target audience	Vocabulary Online, spam, email, scam, virus, citation, plagiarism, copyright, passwords, personal information, photographs, editing, social media, comic. Cite, citation, plagiarism, source, website, bibliography, Email, spam, link, privacy, virus, scam, phishing, inbox, junk, sender, subject. Passwords, secure, safe, account, online, private. Posts, media, image, photography, digital, photoshop, edit, filter, apps, software, social media, adverts.
Year Six	How does hardware help us to communicate? Computer networks connect devices and enable information to be shared. The internet uses systems such as protocols, packets and routing to transfer data. Cloud computing allows information and services to be stored and accessed online, with both advantages and disadvantages.	How can I take responsibility for online safety? Cyberbullying can be as harmful as face-to-face bullying and appropriate action should be taken to report and address it. Websites can be checked for security using features such as secure web addresses and lock symbols. Personal information should be protected and shared carefully online.

	Different technologies, such as broadband and streaming services, allow people to access and share information online. Malware and other cybersecurity threats can affect networks and devices, and steps can be taken to reduce these risks.	Online interactions and friendships can bring benefits and risks, and children should know how to respond to situations that make them uncomfortable. Stereotypes in media and online content can be harmful, and safe, responsible choices should be made when engaging online.
	Vocabulary Adapters, cable, clients, communicate, connections, data, devices, equipment, Internet, network, PC, printer, router, server, smartphone, switch, wireless devices. Clients, communications, data, information, network, router, signals, topology, terminator, wires. DNS server, HTTPS, HyperText Transfer Protocol (HTTP), IP address, Internet Service Provider (ISP), Uniform Resource Locator (URL), clients, encrypted, domain name, query string, packets, path, protocols, router, routing, scheme, server, website.	Vocabulary Cyberbullying, reporting, anonymous, victim, private, personal, online messaging, gender, media, stereotype, online media, message, SMART, attachments, email, website, secure, acronym

	Programming	Creating media
Reception		
	I can program a bee bot to go forward, backwards left and right	I can use clicker to draw an Easter egg or flower
	Vocabulary Beebot left right forwards backwards	Vocabulary Tool paint pattern print colour
Year One	What is an algorithm?	How can I use technology to combine text with photographs, graphics and drawings?
	I know how to create an algorithm. I know how to record an algorithm. I know how to program a Bee-bot. I know how to create an algorithm for the Bee-bot. I know how to find the mistakes when following an algorithm. (debug)	I know how to use paint to draw flowers of my choice from given options. I know how to begin to paint to create a flower. I know how to open and close a programme. I know how to use a keyboard. I know how to describe my flower.

	Vocabulary directional language (forward, backward, quarter turn, half turn), ordering, algorithm, program, Bee-Bot, Debug	I know how to add further detail to my drawing. Vocabulary Monitor, display, keyboard, mouse, trackpad, system unit, headphones, switch, Launch, application, window, minimise, restore, size, move, screen, close, exit. Clicker 8, paint, tools, erase, pen, draw, fill.
Year Two	What is an algorithm? ScratchJr can be used to create and edit simple programs. Characters (sprites) and backgrounds can be added, removed and changed to create a project. Programming blocks control how characters move and behave. Values can be changed to alter movement, direction and speed. Repetition can be used to make actions repeat in a loop.	How can I create a presentation with sound? Presentation software can be used to organise and share information. Information can be organised across multiple slides using titles and subheadings. Text can be formatted to improve the appearance of a presentation. Images can be added, edited and arranged within a presentation. Multimedia features, such as sound, can be used to enhance a presentation.
	Vocabulary ScratchJr, tablet, blocks, programs, character, background, sequence, project.	Vocabulary presentation, PowerPoint, slides, layout, font, sound effects, images, save, retrieve, format, images, crop, border, undo, copy , paste
Year Three	How do you program a sprite? Algorithms are a set of instructions used to solve problems and control programs. Scratch uses different coding blocks that can be combined to create programs. Sequences of blocks can be used to create, test and debug algorithms. Loops and repetition can make programs more efficient by repeating instructions automatically. Problems can be broken down into smaller parts (decomposition) to help design and create programs.	How do you make a branching story presentation? Branching stories can be created with different pathways and outcomes. Presentation software can be used to organise and link content through hyperlinks. Design features such as themes, transitions, animations and shapes can improve presentations. Multimedia elements, including images, audio and video, can enhance communication. Presentations should be reviewed, edited and evaluated to ensure they are effective and meet their purpose.
	Vocabulary Game, user, loop, debug, decomposition, variable. Block code, repeat, repetition, count-controlled. debug, programming, sequence, test, algorithm, block, code, coding,	Vocabulary template, link, text box, title, Object, link, hyperlink, button, shape, action settings.

	Loop, regular polygon, repeat, repetition, customise, nested, customise, repeated until loop.	branching story, plan, link, image, picture, audio, video, Evaluate, text, colour, image, picture, audio, video, layout
Year Four	How can I use Scratch to write a maths quiz program? A successful quiz contains questions and an objective. Scratch contains features such as backgrounds and sprites to make programs visually appealing. User input is a key feature of creating a quiz program. Repeat blocks are used to simplify code.	Can I create a range of different word documents? Text can be edited and formatted to improve the appearance and effectiveness of a document. Images, tables and other features can be added and manipulated to organise information clearly. Layout tools can be used to improve the presentation of a document. Editing tools, such as spellcheck and keyboard shortcuts, can support accurate and efficient work. Hyperlinks can be added to connect documents to relevant online information.
	Vocabulary Contestant, debug, evaluate, multiple-choice, online, open and closed questions, quiz, software. Algorithm, block, Boolean operators, code, conditions, command, debugging, duplication, errors, program, repetition, selection, sequence, sprite. Backdrop, control, effect, function, looks, operator, project, record, repeat, score, sensing, variable.	Vocabulary Format, image, insert, Microsoft Word, Google Docs, poster, font, colour, type, size, align, select, folder, edit, document, webpage, copy, paste, toolbar, copyright. Layout, object, area, bullets, numbering, insert, image, text box, select, manipulate, edit, align, features, save, wrap, spelling, spellcheck, grammar, ignore, change, ignore all, add to dictionary, table, border, cell, shading, colour, rota, toolbar Hyperlink, voucher, URL, format, text, images, apply, combine, insert, toolbar, tools, improve, edit, create.
	How do we control devices? Flowcharts can be used to represent and plan algorithms. Standard flowchart symbols can be used to create, modify and sequence instructions. Decisions, inputs and outputs can be used to control how a program behaves. Complex problems can be broken down into smaller parts using decomposition and subroutines. Programs can be tested, debugged and improved to ensure they work effectively.	What makes an effective video? Video is a form of digital media that can be used to communicate ideas and information. Different filming techniques, camera angles and audio tools can be used to achieve a specific purpose. Effective videos require planning, including selecting appropriate scenes and techniques. Video content can be recorded, edited and improved using a range of digital tools.
Year Five		

		Evaluating and refining a video helps improve the quality and effectiveness of the final product.
	Vocabulary Flowol, flowchart, algorithm, control, output, mimic, simulation, insert, symbol, start, stop, delay, process, decision, input, loop, subroutine	Vocabulary Video, audio, camera, talking head, panning, close up mid-range, long shot, moving subject, side by side, high angle, low angle, normal angle, Static camera, zoom, pan, tilt, storyboard, filming, review, Delete, trim, reorder, export, evaluate, share
Year Six	How can I control a game's environment?	
	Kodu can be used to design and create virtual worlds and games. Objects and characters can be added and programmed to respond to events and actions. Virtual environments can be designed and modified using a range of tools and features. Complex programs can be developed by breaking problems into smaller parts and explaining how code works. Games can be created with goals, obstacles and pathways to provide a purposeful user experience.	
	Vocabulary Kodu, world, object, tool palette, program, Track, character, start, finish, obstacle, path Node, bump, settings, acceleration, turning, environment, smooth, flatten, raise.	Vocabulary

	Data and information
Nursery	
Reception	
Year One	
Year Two	
Year Three	How do you organise data?
	Data can be organised and sorted using yes/no questions. Objects can be grouped and classified according to their attributes.

	Branching databases use questions to identify and separate information. Effective questions help users classify and identify objects accurately. Branching databases can be tested and refined to improve their effectiveness.
	Vocabulary Attribute, value, questions, table, objects, Branching database, database, attribute, value, questions, objects, equal, even, separate, structure, compare, order, organise, attribute, information, decision tree
Year Four	Can I use technology to gather data?
	Data can be collected, organised and used for different purposes. Sensors can be used to gather and record data automatically. Devices such as the BBC micro:bit can collect, process and respond to data. Data can be used within programs to control decisions and outcomes. Algorithms and programs can be designed to solve problems using data and sensors.
	Vocabulary Data, table, layout, input device, sensor, data logger, logging, data point, interval, analyse, data set, data value, import, export, logged, collection, analyse, review, conclusion.
Year Five	How do we organise data?
	Information can be organised and stored within a database using fields and records. Data can be sorted, grouped and filtered to answer questions. Multiple criteria can be used to refine searches and locate specific information. Charts can be created and selected to present and compare data effectively. Databases help users analyse information and present findings clearly.
	Vocabulary Database, record, field, graph, chart, axis, compare, filter, value, search, criteria, chart, presentation

Year Six**How can I organise and analyse information?**

Data can be collected, organised and structured effectively within a spreadsheet.

Different data types and cell formats can be used appropriately.

Formulas can be created and applied to perform calculations and answer questions.

Changing data inputs can affect outputs and results.

Tables and charts can be used to analyse, interpret and present data clearly.

Vocabulary

Data, collecting, table, structure, spreadsheet, Cell, cell reference, data item, format, Formula, calculation, data, spreadsheet, input, output, duplicate, sigma, Propose, question, data set, data, organised, formula, Chart, evaluate, results, comparison, questions, software, tools, data