Knowledge & Skills Progression: EYFS to Year 6

Computing Curriculum

Year	Computing systems and networks Digital literacy	Creating media Information technology	Data and information Information technology	Programming Computer science	Cultural Capital	End Points
EYFS	• Play with a range of technology, both functioning and model / broken devices, or a variety of electronic toys, such as remote-controlled cars, walkie-talkies and interactive pets, as part of continuous provision • Listen to stories about online safety and say some ways to stay safe when using digital devices, e.g. switching off safety, telling an adult if worried.	• Use painting and graphics applications to develop keyboard and mouse skills. • Create digital art for a purpose.	•Organise digital objects into groups according to their properties, e.g. dinosaurs which fly/don't fly.	• Create a story about the Bee Bot's journey, such as around a local area or a country being studied, or sequence events within a story being studied. • Control devices by using directional language.	**Take part in annual Safer Internet Day activities.**	**No ELG.** Uses ICT hardware to interact with age appropriate computer software. Develop digital literacy skills by accessing a range of technologies.
1	• I can recognise and name a range of digital devices, e.g. laptop, phone, games console. • I can log on to the school computer / unlock the school tablet with support. • I can identify the basic parts of a computer, e.g. mouse, keyboard, screen. • I can use a suitable access device (mouse, keyboard, touchscreen, switch). • I can explain why we use passwords and recognise examples of personal information • I know who to tell if concerned about content	• I can select basic tools/options to change the appearance of digital content, e.g. filter on an image / font / size of paintbrush. • I can combine media with support to present information, e.g. text and images. • I can type text using a keyboard • I can create a picture using digital media	• I can describe objects using labels • I can find objects with similar properties • I can answer questions about 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 create a simple program e.g. to control a floor robot. • I can predict the outcome of a simple algorithm or program. • I can explain what an algorithm is and create one • I can debug an error in a simple algorithm or program e.g. for a floor robot.	**Invite a digital artist into school to talk about their work – Matt/Flytrap.**	**End of Y2:** Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs. Use technology purposefully to create,

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2	• I can explain how IT is used at home • I can explain how IT is used in different places • I can use a simple password to log onto the computer or a website. • I can identify rules for acceptable use of technology in school. • I know what personal information is and the need to keep it private. • I can recognise that some information found online may not be true.	• I can create simple digital content for a purpose, e.g. digital art. • I can capture, edit and improve my photos • Present ideas and information by combining media, e.g. text and images • I can identify which photos are real and which have been changed • I can use a computer to create music for a purpose • I can review and refine music I have made	• I can recognise charts and pictograms and explain why we use them. • I can explain information shown in a simple chart or pictogram. • I can modify simple charts/pictograms, e.g. add title, item or labels. • I can identify the key features of a chart or pictogram. • I can collect and present data on a topic	• I can predict the outcome of an algorithm or program with multiple steps. • I can identify and correct errors in a given algorithm or program, and recognise the term debugging. • I can explain what an algorithm and program are • I can plan out a program by creating an algorithm, and evaluate its success.	**Explore online relationships as part of PSHE/RSE lessons.**	organise, store, manipulate and retrieve digital content. Recognise common uses of information technology beyond school. Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies
3	• I can describe what a computer is (input > process > output). • I can recognise that school computers are connected. • Keeping password safe • When not to share personal info • Games/films have age ratings	• I can present ideas and information by combining media independently, e.g. text and images. • I can design and create simple digital content for a purpose/audience, e.g. poster. • I can edit digital content to improve it, e.g. resize text.	• I can use a branching database • I can create a branching database • I can identify the features of a good question in a branching database • I can evaluate a given branching database and suggest improvements	• Modify an existing program, • Create examples of algorithms containing count-controlled loops. • Use a forever loop in a program to keep something happening. • Identify errors in a block or text-based program and correct them. • Recognise that different inputs can be used to control a program	**Careers talk: Invite visitor/parent who works in computing**	**End of Y6:** Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.

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4	• Remember and use an individual password. • Recognise what kinds of websites are trustworthy sources of information. • Recognise the benefits and risks of different apps and websites. • Recognise that the media can portray groups of people differently. • Can rate a game or film they have made and explain their rating	• Collect, organise and present information using a range of media. • Design, create and edit digital content for a specific purpose • Identify the features of a good piece of digital content and apply these in own design. • Know where to find copyright-free content, e.g. Collaborate with peers using online tools creative images.	• Draw conclusions from information stored in a database, chart or table. • Design a questionnaire and collect a range of data on a theme. • Choose appropriate formats to present data to convey information	• Create a program using a range of events/inputs to control what happens. • Explain when to use forever loops and count-controlled loops, and use them in programs. • Recognise selection in a program or algorithm. • Use selection in algorithms in programs e.g. if…then… • Design a program for a purpose. • Recognise common mistakes in programs and how to correct them.	**Watch play with other SAS schools - 'In The Net' about online safety.**	Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. Select, use and combine a variety of software (including
5	• I can explain the difference between the internet and the World Wide Web; and between a search engine and a web browser • I can perform a complex search for information • Know where to find copyright free images and audio, and why this is important. • Critically evaluate websites for reliability of information and authenticity.	• Use different drawing tools to create images • To create a vector drawing by combing shapes • Create images by layering and duplicating images to create more complex pieces of work • To recognise that vector drawings consist of layers Evaluate and improve their own designs	• I know the difference between data and information • I can perform a search to answer questions about data • I can create graphs and charts from data	• Name a range of sensors in physical systems • Predict what will happen in a program or algorithm when the input changes • Use two-way selection i.e. if… then…else… • Recognise variables in a program • Create programs including 'repeat until' loops. • Create and use simple variables, e.g. to keep score. • Create an algorithm for a physical system (with sensor)	**Renishaw outreach visit to school/Visit Renishaw to see CAD/CAM in action.**	

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6	• Explain what makes a strong password and why this is important at school and in the wider world. • Explain how algorithms are used to track online activities with a view to targeting advertising and information. • Know that there are laws around the purchase of games; the production, sending and storage of images; what is written online; and around online gambling	• Select, combine and remix a range of media to create original content. • Consider all steps of the design process when creating content (e.g. identify problem, plan, create, evaluate, share.) • Identify the most effective tools to present information for a specific purpose.	• Recognise what a spreadsheet is and what it is used for. • Use simple formulae in a spreadsheet to find out information from a set of data. • Collect data for a purpose and plan out a spreadsheet to present it effectively, using relevant formulae. • Produce graphs from data in a spreadsheet to answer a question. • Analyse and evaluate data and information in a spreadsheet, chart or database.	• Design and program a system that uses sensors. • Recognise and use procedures (sub-routines) in programs. • Plan out a program in detail, including task, algorithm, code and execution level. • Use nested selection statements in a program • Combine a variable with relational operators (< = >) to determine when a program changes • Recognise key concepts (sequence, selection, repetition and variables)	**Use data applications to produce spreadsheets and graphs to represent findings in science.** **Create digital art for Spirited Arts competition.**	internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concerns about content and contact.

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Vocabulary Progression	EYFS • Paint, draw, colour, fill, print. • iPad, Beebot, direction, forwards, backwards, left, right.	YEAR 1 • Technology, Computer, mouse/trackpad, keyboard, screen, click, drag, draw, double-click, Input device, Shift, space bar, Safely, responsibly, computer, technology • paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool • Forwards, backwards, turn, clear, go, commands Instructions, algorithm, program • Word processor, backspace, toolbar, bold, italic, underline • ScratchJr, Bee-Bot, command, sprite, compare, programming, Block, joining, start block, run, background, delete, reset, algorithm, predict, effect, change,	YEAR 2 • Information technology (IT), computer, barcode, scanner/scan • Device, camera, photograph, capture, image, digital Framing, focal point, subject matter, field of view, format, compose Natural lighting, artificial lighting, • Instruction, sequence, clear, unambiguous, algorithm, program • Debugging, command, program, run, program, start Sprite, design, modify, change • organise, data, object, tally chart, votes • Pictogram, Attribute, group	YEAR 3 • Digital device, input, output, process Program Connection, network, network switch, server, wireless access point (WAP) • Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop Sequence, event, task, design, code, run the code Design, algorithm, bug, debug • Branching database, database, attribute, value, questions, objects, equal, even, separate • Text, images Landscape, portrait, orientation, placeholder, template • Motion, event, sprite, algorithm, logic Move, resize, extension block
	YEAR 4 • Internet, network, router, network security Network switch, server, wireless access point (WAP), router, route tracing, browser content, download, sharing, ownership, permission • Program, turtle, commands, code snippet Algorithm, design, debug, Logo commands, Pattern, repeat, repetition, count-controlled loop, algorithm, • Data, table (layout) Input device, sensor, data logger, data point, interval, analyse, data set, import, export • Scratch, programming, sprite, blocks, code, loop, repeat, value, Block, forever, infinite loop, count-controlled loop, costume design, algorithm, duplicate, debug, refine, evaluate	YEAR 5 • System, connection, digital, input, process, output Protocol, address, packet • Microcontroller, Crumble controller, components, LED, Sparkle, program, repetition, infinite loop, selection, controlled loop, Task, design, selection, condition, action, microcontroller, algorithm, • Database, data, information, record, field, sort, order, group, graph, chart, axis, compare, filter • Vector, drawing tools, shapes, object, icons, toolbar organise, zoom, select, rotate, object, alignment grid, resize, handles, consistency	YEAR 6 • refine index, crawler, bot, search engine, Ranking, Website, web page, browser, media, Hypertext Markup Language (HTML) Web page, website, logo, layout, header, media, purpose Copyright, fair use, hyperlink, • Variable, name, value, set, change Task, algorithm, design, artwork, program, project, code, test, debug • Spreadsheet, data, data heading, data set, cells, columns and rows, Formula, calculation, input, output. cells, cell reference • 2D, 3D, Rotate, position, select, duplicate Dimensions, placeholder, • Micro: bit, MakeCode, input, process, sensing, output, flashing, USB Selection, condition, if… then… else, variable, random accelerometer	