



St John's Computing Curriculum

Nursery and Reception

Early learning goal – technology

Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.

Aims

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

Key stage 1

Pupils should be taught to:

- 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, 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.

Key stage 2

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- 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 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.

Year						
Reception	Computing	Technology in our lives	Multimedia	Computing	Data handling	Multimedia
1	<p>Multimedia Use paint to create pictures, Add text and images to a template. 2Create a story,</p>	<p>Multimedia Sock puppets – record a sound and play back for an audience</p>	<p>Computing Physically give/follow instructions. Beebots – exploring introduce debugging</p>	<p>Computing Beebot – prediction algorithms, on screen robots (beebot, daisy the dino app) executing algorithms on a beebot.</p>	<p>Technology in our lives ID use of tech in classroom, at home and local area, talk about internet and content on a local device. Explore resources on age appropriate websites, email and facetime?</p>	<p>Data Handling Contribute and interpret pictograms, take photos, videos, sound, record learning experiences and know how data is represented digitally.</p>
2	<p>Multimedia Use increasing variety of tools and effects in paint programs – talk about choices. Create docs adding text and images. Use templates to make ebooks Book creator app</p>	<p>Multimedia Explore effects of sound and music in animation and video.</p>	<p>Computing Physically give / follow instructions, including rt angle turns. Articulate an algorithm to achieve a purpose. Plan and enter sequence of instructions to achieve a goal.</p>	<p>Computing Predict algorithm required to reach specified point, predict what will happen and test results. Explore outcomes when given instructions in a simple logo program (Scratch / 2Simple) explore similarities in a floor robot and logo on screen</p>	<p>Technology in our lives Develop keyboard skills – correct fingering. Shift and CAPS Lock, del, backspace Purposes of tech in class, home and world around. Find info from internet, files on Public drive. Understand whether info is true.</p>	<p>Data Handling Ask questions and consider HOW to collect information, collect data and generate graphs and charts to find answers. Save and retrieve data to show others. Create paper / object decision trees and branching databases.</p>
3	<p>Multimedia Explore and begin to evaluate use of Multimedia to enhance</p>	<p>Multimedia Art programs – brush sizes, repeats, reflections. Exploring use of video,</p>	<p>Computing Plan and enter a sequence of instructions on a robot, specifying</p>	<p>Computing solve open-ended problems (with a floor robot/ Logo /Scratch) including</p>	<p>Technology in our lives Amend text, copy, cut, paste. Editing own work and</p>	<p>Data Handling Find out information from a pre-prepared database, asking straightforward</p>

	<p>communication, create and begin to edit text and font size, colour alignment for emphasis and effect. (Adobe Voice)</p>	<p>animation and green screening. Using IT tools to create musical phrases (iMovie – trailers garage band and incredibox)</p>	<p>distance and turns to achieve specific outcomes. Debugging the sequence where necessary. Test and improve / debug programmed sequences. Begin to input commands to achieve outcomes. Explore outcomes when giving sequences of instructions in software. Use repeat to achieve solutions to tasks</p>	<p>creating simple regular polygons, making sounds and planning movements such as a dance, create an algorithm to tell a joke or a simple story using Scratch, sequence pre-written lines of programming into order, talk about algorithms planned by others and identify any problems and the expected outcome</p>	<p>improve for effectiveness</p> <p>Save work on the school network, and talk about saving work on the internet and on individual devices. Talk about the parts of a computer. Use appropriate tools to collaborate on-line (i.e. School Blog)</p> <p>Use appropriate tools to communicate on-line.</p> <p>Use simple search tools and find appropriate websites.</p> <p>Talk about the owner of information online.</p>	<p>questions. Contribute towards a database. Construct and use a branching database. Record data in a variety of ways. Present data for others. Use a data logger to monitor changes and talk about the outcomes seen</p> <p>2Investigate – Log box?</p>
4	<p>Multimedia</p> <p>Explore how Multimedia (photos, video and sound) can create atmosphere and appeal to different audiences</p> <p>Be confident in creating and modifying text and presentation documents to achieve</p>	<p>Multimedia</p> <p>Explore the use of video, animation, and green screening for a specific audience. Eg Reception</p> <p>Use ICT tools to create music phrases for a specific purpose</p> <p>Look at their own,</p>	<p>Computing</p> <p>create and edit procedures typing logo/Scratch commands including pen up, pen down and changing the trail of the turtle/sprite ☐</p> <p>Use sensors to ‘trigger’ an action such as turning the</p>	<p>Computing</p> <p>solve open-ended problems with software (Scratch) using efficient procedures to create shapes and letters (introducing the idea of variables and operators)</p> <p>experience a variety of resources to</p>	<p>Technology in our lives</p> <p>Use a keyboard effectively, including the use of keyboard shortcuts</p> <p>Use font sizes and effects such as bullet points appropriately.</p> <p>Know how to use a spellcheck.</p>	<p>Data Handling</p> <p>Plan and create a database to answer questions. Identify different types of data. Ask questions carrying out simple searches on a database. Identify inaccurate data.</p>

	<p>a specific purpose Use art programs and online tools to modify photos for a specific purpose using a range of effects Adobe Slate</p>	<p>and a friend's work and provide feedback that is constructive and specific. Green Screen by DoInk, iMovie, Garageband, Incredibox</p>	<p>lights on using Probot if it 'goes through a tunnel', or reversing if it touches something or simulated sensor commands in a Scratch programme</p>	<p>extend understanding and knowledge of programming create an algorithm and a program that will use a simple selection command for a game begin to correct errors (debug) as they program devices and actions on screen use an algorithm to sequence more complex programming into order link the use of algorithms to solve problems to work in Mathematics, Science and Design and Technology ☐ identify bugs in programs</p>	<p>Talk about the school network and the different resources they can access, including the internet. Frame questions and identify key words to search for information on the internet. Consider reliability of information and ways it may influence you. Check who the owner is before copying photos, clipart or text.</p>	<p>Present data in appropriate format for an audience. Use a data logger to record and compare. 2Investigate, excel</p>
5	<p>Multimedia Select appropriate software/hardware or online tool to create and share ideas. ☐ Explore the effects of Multimedia (photos, video, sound) in a presentation or video and show how they</p>	<p>Multimedia ☐ Use a wide range of effects in art programs and online tools, discussing the choices made and their effectiveness. ☐ Know how to use text and video editing tools in programs to refine</p>	<p>Computing explore procedures using repeat to achieve solutions to problems using Scratch ☐ talk about procedures as parts of a program ☐ refine procedures to improve efficiency ☐ use variables and</p>	<p>Computing ☐ explore a computer model to control a physical system ☐ change inputs on a model to achieve different outputs ☐ refine and extend a program ☐ identify difficulties and articulate a</p>	<p>Technology in our lives Identify different parts of computing devices. ☐ Identify different parts of the internet. ☐ Choose appropriate tools for communication and collaboration and</p>	<p>Data Handling Collect and record information using spreadsheets and databases ☐ Carry out complex searches (e.g. using and/or; \leq / \geq) ☐ Solve problems and present answers using data tools.</p>

	<p>can be modified.</p> <ul style="list-style-type: none"> ☒ Develop skills using transitions and hyperlinks to enhance the structure of presentations. 	<p>their work.</p> <ul style="list-style-type: none"> ☒ Use online tools to create and share presentations and films. 	<p>operators to develop complexity in program functions</p> <ul style="list-style-type: none"> ☒ explore instructions to control software or hardware with an input and using if... then... commands 	<p>solution for errors in a program</p> <ul style="list-style-type: none"> ☒ write down the steps required (an algorithm) 	<p>use them responsibly.</p> <ul style="list-style-type: none"> ☒ Use effective strategies to search with appropriate search engines. ☒ Talk about the different elements on web pages. ☒ Find out who the information presented on a web page belongs to. 	<ul style="list-style-type: none"> ☒ Analyse information and question data. ☒ Identify poor quality data. ☒ Select appropriate use of a data logger for an investigation and interpret the findings
6	<p>Multimedia</p> <p>Identify the purpose for selecting an appropriate online tool.</p> <ul style="list-style-type: none"> ☒ Discuss audience, atmosphere and structure of a presentation or video. ☒ Collect information and media from a range of sources (considering copyright issues) into a presentation for a specific audience. ☒ Use sound, images, text, transitions, hyperlinks and HTML code effectively in presentations. ☒ Store presentations and videos online where they can be accessed by 	<p>Multimedia</p> <p>Identify the purpose for selecting an appropriate online tool.</p> <ul style="list-style-type: none"> ☒ Discuss audience, atmosphere and structure of a presentation or video. ☒ Collect information and media from a range of sources (considering copyright issues) into a presentation for a specific audience. ☒ Use sound, images, text, transitions, hyperlinks and HTML code effectively in presentations. ☒ Store presentations and videos online where 	<p>Computing</p> <p>record in some detail the steps (the algorithm) that are required to achieve an outcome and refer to this when programming</p> <ul style="list-style-type: none"> ☒ predict the outputs for the steps in an algorithm ☒ increase confidence in the process to plan, program, test and review a program ☒ write a program which follows an algorithm to solve a problem for a floor robot or other model ☒ write a program which follows an algorithm to achieve a planned outcome for 	<p>Computing</p> <p>control on screen mimics and physical devices using one or more input and predict the outputs</p> <ul style="list-style-type: none"> ☒ understand how sensors can be used to measure input in order to activate a procedure or sequence and talk about applications in society 	<p>Technology in our lives</p> <p>Describe different services provided by the internet and how information moves around the internet.</p> <ul style="list-style-type: none"> ☒ Describe different parts of a computing device and how it connects to the internet. Connect a computing device to a keyboard, mouse or printer. ☒ Identify appropriate forms of online communication for different audiences. ☒ Use search engines as part of an effective research strategy. ☒ Describe how 	<p>Data Handling</p> <p>Use the whole data process – generate, process, interpret, store, and present information – realising the need for accuracy and checking plausibility.</p> <ul style="list-style-type: none"> ☒ Select appropriate data tool. ☒ Identify and present results. ☒ Interrogate a database, refining searches to provide answers to questions. ☒ Plan investigations using the outcomes from a data logger to show findings

	themselves and shared with others. ☑ Evaluate the effectiveness of their own work and the work of others.	they can be accessed by themselves and shared with others. ☑ Evaluate the effectiveness of their own work and the work of others.	appropriate programming software ☑ group commands as a procedure to achieve a specific outcome within a program ☑		search results are selected and ranked. ☑ Acknowledge who resources belong to that have been found on the internet.	
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