

## KS2 Computing Assessments

Name \_\_\_\_\_

By the end Key Stage 2, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study. This document will help assess whether a child is on target for end

| PoS to be achieved by the end of KS2:   | Assessment statements   |   |   |   |   |
|---|---|---|---|---|---|
|   | Approx Y3   | Approx Y4   | Approx Y5   | End of Y6   | Approx Y7+  |
| <i>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</i> | <p>Program appropriate software to create simple shapes/patterns (e.g Logo).</p> <p>Use some basic features to design and write a program to change or move a character in an application (e.g. Scratch).</p> | <p>Create more complex shapes/patterns by breaking instructions into smaller parts (decomposing). For example, in Logo create a procedure (e.g. to draw a square) then create a sequence that draws the procedure, rotates x degrees then draws another procedure (square) and so on.</p> <p>Write a simple program to achieve a specific outcome in appropriate software (e.g. Create two characters in Scratch that have a conversation).</p> | <p>Develop more complex flow diagrams/logo algorithms for a specific purpose. Refine procedures and algorithms to improve desired outcomes. Use sub routines to decompose the problem into smaller parts.</p> <p>Create a simple game or simulation (e.g. Create a game in Scratch using support sheets or instructions).</p>         | <p>Design own game, simulation or app and use a programming tool to create it for use by others (e.g. Scratch, Kodu and Appshed).</p>   | <p>Design, use and evaluate programs that model the state and behaviour of real-world problems and physical systems.</p> <p>Use a text based programming language to solve a problem.</p> |
| <i>Use sequence, selection, and repetition in programs;</i>   | <p>Be able to create a sequence of instructions or actions that are executed in order one after another. Begin to understand the need to be precise when framing and sequencing instructions.</p>             | <p>Be able to create logically sequenced instructions or actions that are executed in order one after another. Begin to use 'selection' to include "if... then... else" type actions or statements. (E.g. in a game program, if the sprite is touching a wall then bounce back, else move forward).</p>   | <p>Start to create logically sequenced instructions for a specific task. Be able to use 'selection' to include "if... then... else" type actions or statements. Begin to use repetition (e.g loops of all kinds, such as repeat, for, while, until etc. (e.g. move cat 1 step forward; repeat until cat hits the wall then stop).</p> | <p>Understand the need to be precise when framing and sequencing instructions. Able to use 'selection' to include "if... then... else" type actions or statements. Able to use repetition (e.g loops of all kinds, such as repeat, for, while, until etc.</p> |   |

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|   | Approx Y3  | Approx Y4  | Approx Y5  | End of Y6  | Approx Y7+   |
| <i>Work with variables and various forms of input and output</i>  | <p>Know methods of input include keyboard, mouse, touch, microphone, camera, sensors, and output may include screen, printers, speakers, switches and simulated or physical control devices. Begin to control devices using outputs only e.g. using sensors to monitor and measure external events/switching on a light in a flow diagram control program/moving a Sprite in Scratch.</p> <p>Enter labels and numbers into a spreadsheet. Use a spreadsheet to explore simple number patterns. Make simple number sentences.</p> | <p>Create simple flow diagrams to control physical devices (real or screen simulations) using outputs only (e.g. Flowol, or Go). Begin to use computer inputs to control the outputs (e.g. a light coming on in response to a light/movement sensor). Create own simple scenarios (eg Make a Scratch Sprite bounce if he touches a wall). Begin to know numbers and text can be stored and referred to in programs as 'variables' and the value of the variable could come from user input by typing a value.</p> <p>Use simple formulae correctly and be able to discuss changes in cells when linked cells are altered (sum, +,-).</p> | <p>Create simple flow diagrams to control physical devices (real or screen simulations) using inputs and outputs (e.g. Flowol, or Go). Know numbers and text can be stored and referred to in programs as 'variables' and the value of the variable could come from user input by typing a value. Create simple games in programs (eg Scratch and Kodu) using simple variables. Begin to use programming so a random variable is selected or set by programmed instructions (eg score = +1).</p> <p>Enter formulae into a spreadsheet and modify the data, (use range of formulae: sum, average + - × ÷). Link formulae to other cells to test input against output.</p> | <p>Write control sequences which use outputs and inputs (using if... then... type commands) to control events in response to conditions. Know numbers and text can be stored and referred to in programs as 'variables' and the value of the variable could come from user input, programmed instructions or by producing a random variable. Create games in programs using a range of variables e.g. using arrow keys as input in a game, create challenges which have an assortment of scores depending on action.</p> <p>Test variables within a spreadsheet to answer 'what if..?' questions by changing one cell that links to other cells.</p> |  |
| <i>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</i> | <p>Begin to explain the steps of their written algorithm and start to correct errors if needed.</p>  | <p>With support test programs to detect errors and modify procedures or sequences where necessary.</p>   | <p>Explain simple logical steps of their flow diagrams in the design process. Detect and correct errors if needed.</p>   | <p>Explain algorithms written during design process to show an understanding of the logical steps. Correct errors to debug the program where necessary.</p>  | <p>Understand some key algorithms that reflect computational thinking [for example, ones for sorting and searching]. Use logical reasoning to compare different algorithms for the same problem.</p> |

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|   | Approx Y3  | Approx Y4   | Approx Y5  | End of Y6   | Approx Y7+  |
| <i>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</i>  | Know the school has a computer network and the computers in school can access information outside the school via the world wide web.   | Know there are different computer networks (e.g. school network, internet as a network of linked computers, world wide web as a network of websites etc.).  | Understand that information can be stored in different places (e.g. removable USB drive, CD/DVD, hard drive, small local network server and remote servers known as 'cloud technology').   | Can discuss and describe computer networks and how they can provide multiple services, such as the world-wide web; and the opportunities they offer for communication and collaboration.  | Start to understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems  |
| <i>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</i>   | Develop key questions and key words to search for specific information to answer a problem (e.g. a question such as “where could we go on holiday?” would become “holiday destinations”).<br>Know there are different search engines available.  | Save and retrieve accessed information through the use of Favourites, History and Save As...<br><br>Apply some research skills by using different search engines and websites.  | Develop strategies for finding information checking for bias and different viewpoints .<br><br>Use research skills by selecting search engines for different media (e.g. Google Image Search, video, or sounds).   | Develop skills to question where web content might originate (by looking at web address, author, linked pages etc.). Question plausibility.<br><br>Can discuss how internet search engines find, store and rank data.   | Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users. |
| <i>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</i> | Generate and compare different charts and graphs (using graphing software, database or spreadsheet) and understand that different graphs are used for different purposes.<br><br>Investigate changes in the environment using a datalogging device to capture measurements (sound, temperature, light) continuously over time. | Determine the data needed to solve a specific problem; organise, present, analyse and interpret the data in tables, diagrams, tally charts, pictograms and bar charts.<br><br>Use a datalogger to “snap shot” a series of readings in the course of an appropriate investigation. | Construct, refine and interpret frequency tables, bar charts with grouped discrete data and line graphs; interpret pie charts.<br><br>Use the pre-programming features of data loggers to set up a specific data capture, perhaps overnight.<br>Use graphical information to answer questions and solve simple problems. | Construct refine and interpret various graphs. Check for accuracy by checking data, using different views, search tools, and graphing. Identify and correct inaccuracies.<br><br>Use a range of sensors (temperature, light, sound, heart rate monitors, light gates etc.) in a variety of situations in the course of scientific investigations. | Create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability.  |

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| <i>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</i> | Collect appropriate information, enter it into a database and use the database to answer simple questions. | Raise questions of a database and translate them into search criteria (e.g How much hotter is it in July than Feb?) . | Design questions using key words, to search a large pre-prepared database. Use complex searches (and/or, is greater/less than) to search data when looking for relationships and patterns in data. | Check for accuracy by checking data, using different views, search tools, and graphing. Identify and correct inaccuracies.  |   |
|   | Use different font sizes, colours and effects to communicate meaning for a given audience.                 | Use layout, format, graphics and illustrations for different purposes or audiences.                                   | Combine text, images sound and video to presentations.   | Independently select and combine text, images, video and sounds to presentations from a variety of sources (including trhe internet) using a range of digital devices.                        |   |
|   | Recognise key features of layout and use design features such as text boxes, columns and borders.          | Create a range of hyperlinks to produce a non-linear, interactive presentation.                                       | Develop the use of hyperlinks and use animations and transitions to produce interactive presentations or websites.   | Create presentations for specific purposes, considering the appropriateness of content, transitions and animations.   |   |
|   | Independently capture, store and retrieve a digital image or video.  | Prepare images for use (cropping, resizing, editing) or a video for editing (e.g Movie Making software).              | Edit digital images in a paint program. Create a video. Save images in a range of formats for different purposes.  | Export videos in a variety of formats and use them in multimedia presentations.   |   |
|   | Select and record sounds and use recorded sound files in other applications.                               | Edit existing sound files in sound editing software (e.g. Audacity).  | Independently select, edit and combine sound files.  | Create their own sounds and compositions to add to their presentations, films, images and photos.   |   |
| Create a short animated sequence in simple storyboarding software to communicate a specific idea.   | Plan and create a short animated sequence to communicate an idea, using a storyboard and timeline.         | Create an animated sequence and add own narration or saved music.   | Create an animation for a specific audience, add own narration or saved music and add titles and credits.  |   |   |
| <i>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</i>  | Understand the Internet contains fact, fiction and opinion and begin to distinguish between them.          | Be aware that taking text or images from some sites may be stealing other people's work.                              | Have an awareness of the need to check a resource has copyright.   | Use a range of sources to evaluate information found online, consider plausibility and develop strategies to make judgements on the sources used e.g. cross-referencing a number of websites. | Know how to check the author of a website, e.g. through 'Whois' sites that list the author's details. |

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| <i>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</i> | <p>Know whenever they are online they are creating a digital footprint.</p> <p>Know to keep personal information and passwords private when communicating online.</p> <p>Know how to respond to unpleasant communications via mobile phone, text, IM or email, chat rooms. (Save the message and show to a trusted adult).</p> | <p>Know that the aim of many sites is to sell something or gain personal information and can be linked to from other sites.</p> <p>Know that anyone can create a user showing any age or gender and people you meet online may not be who they say they are.</p> <p>Know there are writing conventions for electronic communication (language, tone, accuracy).</p> | <p>Understand the impact of an individual sending or uploading inappropriate content to a wider audience.</p> <p>Understand the need for privacy settings on any social networking sites.</p> <p>Recognise acceptable/unacceptable online behaviour and that online bullying is unacceptable.</p> | <p>Know the importance of not uploading other people’s images or content without their permission and be aware of the implications of file sharing.</p> <p>Understand some malicious adults use the internet to make contact and “groom” young children. Know how to report any suspicions.</p> <p>Identify a range of ways to report concerns about content and contact.</p> <p>Know a digital footprint will last a lifetime and some of it can be tracked by others.</p> | <p>Recognise inappropriate content, contact and conduct, and know how to report concerns.</p> <p>Know how to protect their online identity and privacy.</p> <p>Understand a range of ways to use technology safely, respectfully, responsibly and securely.</p> |