

SJA Progression of Skills – Computing



	Y1/2	Y3	Y4	Y5	Y6
Online Safety	<ul style="list-style-type: none"> * Understand what personal information is and why we keep personal information private. * Why do websites want personal information. * Identify when and where to go for help when concerned. * What are the dangers of sharing photos online? * People online are not always who they say they are. * Trusting information online. * Using the Internet responsibly. * Being respectful. 	<ul style="list-style-type: none"> * Understand what to do if something upsets you online. * Understand why and how people can be nasty online. * Describe the term 'sharing online' and why we need to get permission to share photos and videos of other people. * Understand why people pretend to be someone else online. * Understand why we only talk to people we know in the real world, when online. * Understand why we should not always trust what we read online and how to check * Understand the importance of being kind in the real world and also online. * Understand the importance of using avatars and how to make them. 	<ul style="list-style-type: none"> * Understand what to do if something upsets you online. * Understand why and how people can be nasty online. * Describe the term 'sharing online' and why we need to get permission to share photos and videos of other people. * Understand why people pretend to be someone else online. * Understand why we only talk to people we know in the real world, when online. * Understand why we should not always trust what we read online and how to check * Understand the importance of being kind in the real world and also online. * Understand the importance of using avatars and how to make them. 	<ul style="list-style-type: none"> * Keep personal information private. * Respect and protect against online bullies. * Understand the consequences of sharing photo/videos online. * Understand the term digital footprint. * How can we check online content is trustworthy. * How and where and who can we report concerns we have to. * Understand the pitfalls of in-app purchases. 	<ul style="list-style-type: none"> * Keep personal information private. * Respect and protect against online bullies. * Understand the consequences of sharing photo/videos online. * Understand the term digital footprint. * How can we check online content is trustworthy. * How, where and who can we report concerns we have to. * Use suitable usernames and passwords for online accounts. * Understand the pitfalls of in-app purchases.
Multimedia	<ul style="list-style-type: none"> * Move the mouse or trackpad and left click to select an object. * Drag and drop with mouse or trackpad to move objects around the screen. * Find letters or numbers on a keyboard. * Begin touch typing with home row keys. * Change the background colour of a page. * Add, resize and position images (pictures) on a page. * Type and position text on a page, if possible using capital 	<ul style="list-style-type: none"> * Copy and Paste text and images. * Find and replace words. * Format text for a purpose. * Add bullet points to make lists. * Experiment with keyboard shortcuts. * Use lines and fill tools to make interesting patterns. * Add a variety of shapes (outlines and fill) and label them with text. * Re-create graphics using pixels with different colours. * Use various lines and fill tools plus copy/paste and rotation to create pattern effects. 	<ul style="list-style-type: none"> * Create an icon using different shapes and fill tools. * Combine shapes and lines, then arrange them in front/behind each other. * Combine shapes, colour and text to re-create an icon. * Change the colour, size and style of text to match an icon, then arrange images and use masking and opacity tools. * Understand 3D spacial awareness. * Add 3D shapes, resize, adjust height, duplicate and use 	<ul style="list-style-type: none"> * Add page colour and style. * Add, position and format text on different pages. * Add and position images. * Add audio, including hiding it behind an object. * Add hyperlinks to text and images. * Search for shapes. * Lock and arrange shapes (extension task). * Layer tracks using sounds and effects. * Create effective instrument tracks. 	<ul style="list-style-type: none"> * Add, adjust and fill shapes/images * Add and customise gradient effects. * Adjust transparency / opacity for a purpose. * Use a colour picker correctly. * Accurately rotate images. * Adjust the colours, brightness and contrast to improve a photo. * Create a before and after slide in presentation software. * Take and crop a screenshot. * Add drawing and text layers. * Import new images as layers

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	<p>letters and punctuation.</p> <ul style="list-style-type: none"> * Label pictures with text. * Use word-banks for writing sentences about pictures. 	<ul style="list-style-type: none"> * Use shapes, fill, copy/paste, zoom and flip to create reflective symmetry effects. * Use stamps, copy/paste, layers and multiple frames to create animated GIF computer game graphics. 	<p>the different perspective.</p> <ul style="list-style-type: none"> * Re-create different types of buildings using 3D shapes. * Create roads/paths by adjusting the height of 3D shapes. * Add windows and door shapes. 	<ul style="list-style-type: none"> * Edit tracks and effectively adjust volume and add effects. 	<p>and resize them to fit.</p> <ul style="list-style-type: none"> * Add colour elements to a black and white image using layers and eraser tools.
<p>Computing Systems and Networks</p>	<ul style="list-style-type: none"> * Understand what makes a computer a computer. * Understand computers store and follow instructions. * Spot digital technology in school. * Understand how different technology helps us. 	<ul style="list-style-type: none"> * Understand that computers and software often require usernames and passwords * Learn their username and password for GSuite Understand how to log on to Gmail, Drive, Docs and Sheets and navigate between them. 	<ul style="list-style-type: none"> * Understand what important parts of inside a computer or mobile device do to help with the performance (CPU, Fan, Hard Drive, RAM, Graphics Card). * Understand that memory is measured in bytes and gigabytes. * Use search filters on websites to find suitable information. 	<ul style="list-style-type: none"> * Understand the importance of an operating system and its key features. * Demonstrate important operating system skills (organising files etc), if possible, across multiple operating systems. * Understand Computer Networks, Internet and Cloud Computing and how they help us. * What is email and how can we use it safely? * Understand how and why we collaborate online (including blogging). 	<ul style="list-style-type: none"> * Understand how computers use information to learn by solving new problems and following new instructions. * Understand and use examples of machine learning. * Understand how artificial intelligence is used to perform tasks often only performed by humans. * Discuss and show awareness of potential dangers of AI.
<p>Coding and Programming</p>	<ul style="list-style-type: none"> * Place instructions into the correct order (sequence) to make something work. * Use direction arrows to move an on-screen object (character/sprite) to achieve an objective. * Predict a route and sequence direction commands (algorithm) to achieve an objective. Correct the errors if necessary (debug). * Predict a route and sequence distance commands to program an on-screen object to achieve an objective. 	<p>Scratch</p> <ul style="list-style-type: none"> * Design, write and debug programs that accomplish specific goals. (Including outputs) * Use repetition in programs. * Work with various forms of inputs; keyboard, mouse and touch screen. * Write programs to simulate physical systems. <p>Kodu</p> <ul style="list-style-type: none"> * Create a 3D place using various design tools * Write a program to control a character using inputs 	<ul style="list-style-type: none"> * Program inputs with loops, selection and sensing for interactions. * Work with variables and various forms of input and output. * Debug programs that accomplish goals. (correcting errors) * Use selection, data variables and operators. * Program a virtual robot using Scratch blocks. 	<ul style="list-style-type: none"> * Program inputs for control, selection (conditions) and sensing for interaction and data variables for scoring and a game timer. * Program distance sensing and movement. * Program inputs, outputs, loops, selection (conditions), sensing and variables. * Program list variables that chooses randomly. * Change the variables of text-based commands. 	<ul style="list-style-type: none"> * Program keyboard/touch screen inputs, selection (conditions), loops and random variables for unpredictability (operators). * Program inputs, selection, sensing, random variables, operators for direction and data variables for scoring. * Use inputs, selection, loops, sensing, costume changes and broadcasts. * Work with multiple sprites to send broadcast messages between them.

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	<ul style="list-style-type: none"> * Predict and sequence movement and pen commands to program the drawing of different 2D shapes. * Sequence code blocks, including movements and execute (start program) blocks to write a program to achieve an objective. * Create and debug simple programs by selecting code blocks, placing them in the correct sequence and executing a program. * Use logical reasoning to predict the behaviour of simple programs. * Simplify a program by using a loop. * Program movements. * Program outputs for audio or text. * Find errors in a program. * Program inputs. * Program selection/conditions (if one sprite hits another). 	<ul style="list-style-type: none"> * Write a program with conditions to create an if statement (If the character touches an object it will disappear) * Add a multi-player aspect * Write a program with variables (scoring system) * Program operators (equals) to achieve a score and win a game. 		<ul style="list-style-type: none"> * Write text-based commands accurately and use fill effects, stamps and functions. * Write text-based commands to program digital art. * Write text commands / functions to program keyboard inputs in a game. (Not compatible with iPad/tablet unless using physical keyboard) * Programming a Logo turtle to move and use pen * Use co-ordinates in with a Logo turtle. * Program a loop (repetition) and shapes in Logo Turtle * Program colours in Logo turtle * Program variables in Logo turtle. * Understanding Bluetooth Technology as Input Device * Write programs for the Sphero using movement and repetition (loops). * Write a program to trace a maze/route with Sphero and De-bug. * Write a program with outputs. * Write a program with random variables 	<ul style="list-style-type: none"> * Understand why computers/electronics use binary. * Match a sequence of binary code to create digital art. * To convert binary code to denary numbers (decimal numbers) and visa versa. * Use the PRINT command for text. * Program a simple calculator in Python. * Program loops to repeat text. * Program interactive inputs. * Find errors in a program (debugging) * Program a trivia chatbot using 'send message' functions (challenge) * Add and align text and change colour. * Program background colour. * Add and align images. * Add hyperlinks to other websites. * Add an iframe (such as a Google Map) and adjust the height and width.
<p style="text-align: center;">Handling Data</p>		<ul style="list-style-type: none"> * Understand what an infographic is and why we use them. * Search for and add suitable graphic elements. * Add and format suitable titles and text. 	<ul style="list-style-type: none"> * Change appearance of cells in a spreadsheet (fill colour and border) then add and align text. * Find and add data to a spreadsheet, resize cells and use the software to create a suitable chart with a title. 	<ul style="list-style-type: none"> * Select and use non-adjacent cells plus resize multiple cell widths and copy/paste cells. * Use formulae to find totals, averages and maximum/minimum numbers. 	<ul style="list-style-type: none"> * Use comprehension skills to find clues that match the column headings of a spreadsheet. * Use spreadsheet tools (filters and conditional formatting) to

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		<ul style="list-style-type: none"> * Label an image with arrows and text. * Add and label objects within a branching database. * Ask questions to sort (classify) objects. 		<ul style="list-style-type: none"> * Find data and create a spreadsheet to suit it. * Search a database for specific information. 	find the specific data to match the clues.
Internet Usage & App/Website Creation	<ul style="list-style-type: none"> * Understand how a web-page displays information in different ways; text, images, videos and interactive elements. * Use a web-page to answer questions. 	<p>Comic Creation</p> <ul style="list-style-type: none"> * Add, resize and organise colour or picture backgrounds. * Add, resize, organise characters/objects to different panels. * Add narration using text and direct speech using speech bubbles. * Save comic with name and title. * Add audio recordings (optional). 	<ul style="list-style-type: none"> * Use search technologies to find specific pieces of information. * Understand features of an Internet Browser. * Reference the correct source of information. * Be discerning in evaluating digital content. * Check the internet for fake news by cross-referencing facts. 	<ul style="list-style-type: none"> * Design an app for a specific purpose * Adjust slide size to mimic a phone/tablet size. * Add text and images (<i>including transparent images</i>) to a slide. * Add icons and text to use as navigation. * Duplicate slides to create multiple pages of the app. * Create hyperlinks to create navigation. 	<ul style="list-style-type: none"> * Create a static homepage. * Choose a suitable theme for your website. * Change the site identity to a suitable title, tagline and website icon. * Upload a suitable header and/or background image. * Adjust the website sidebar and add suitable widgets. * Add text and images to a page and edit them. * Add multiple pages and edit the navigation, including sub-menus. * Provide constructive feedback for your classmates' websites.