



Danegrove Primary School

Progression in Computing



Early Years: Understanding the World - See Foundation Overview

NC Programme of Study	<ul style="list-style-type: none"> 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 Use technology safely, respectfully and responsibly. Recognise acceptable/unacceptable behaviour. Identify a range of ways to report concerns about content and contact. 					
	1	2	3	4	5	6
Year Group	1	2	3	4	5	6
E-Safety/Digital Literacy	<p>Begin to understand what 'online stranger' means and associated online risks.</p> <p>Understand the school's acceptable use guidance (age-appropriate)</p> <p>Know how to minimise a screen, or activate a special screen 'protection' if they see something inappropriate and to tell a responsible adult.</p> <p>Understand what personal information means, and the need to keep it private. Be polite in online communication.</p> <p>Use simple, safe navigation skills e.g opening a teacher selected website from a favourite's link or shortcut. Make choices by clicking buttons on a webpage, navigate forward and back using arrows on a browser and returning to</p>	<p>Know that people you communicate with online may not always be who they say they are.</p> <p>Understand not to communicate any personal information online.</p> <p>Keep their password secret.</p> <p>Understand how to apply the school's acceptable use policy.</p> <p>Know to report inappropriate content to a responsible adult in school and at home.</p> <p>Develop their sensitivity to others online, treating them with respect and showing respect for their privacy.</p> <p>Use the internet purposefully to answer specific questions.</p>	<p>Use child-friendly search engines independently to find information by changing questions into keywords.</p> <p>Know how to respond to unpleasant communications via mobile phone, text, IM or email, chat rooms. (Save the message and show it to a trusted adult.)</p> <p>Be aware that taking lots of text from websites are stealing other people's work.</p> <p>Understand that the Internet contains fact, fiction and opinion and begin to distinguish between them.</p>	<p>Use an internet search to answer questions on a specific topic, and to gather resources for their own work.</p> <p>Understand the importance of logins and passwords to access certain areas.</p> <p>-Discuss the different search engines and their features, e.g. search engine tools for different types of media, Google Image Search, video, sound, understanding that the results are not always what you expect.</p> <p>-Make choices about which image and video material (including games) are suitable for their age and experience.</p> <p>-Understand copyright issues – what images / videos / sounds are legal and safe to use.</p>	<p>Evaluate digital content. Know how to search for a file/program on a school computer/network.</p> <p>Understand the term copyright.</p> <p>Understand the importance of appropriate online behaviour and that online (cyber-) bullying is unacceptable and will be sanctioned.</p> <p>Ask questions carrying out complex searches refined using combinations of keywords.</p> <p>Evaluate search results efficiently and refine search criteria for more relevant results.</p> <p>Evaluate information found online, considering plausibility and develop strategies to make judgements on the sources being used</p>	<p>Evaluate digital content, check against other sources, consider whether the content author may have a biased viewpoint.</p> <p>Appreciate that some search engines have algorithms that work in different ways e.g. word order.</p> <p>Evaluate search results, be aware that ranking is influenced by factors such as popularity, number of links to that page from other sites, advertising and filtering.</p> <p>Understand that malicious adults use the internet to make contact and groom" young children "and how to report any suspicions (Think You Know REPORT ABUSE page).</p> <p>Understand how to behave responsibly and safely using social media and other platforms.</p>

	homepage, maximise and minimise windows.	<p>Understand that not everything on the internet is true (e.g by exploring spoof websites)</p> <p>Know that you can be accidentally diverted from a website through a link to a new website, advertising or pop-up.</p> <p>Know that the internet can be viewed by anybody and that the school's online classroom can only be viewed by people within the school.</p>	<p>Know how to respond when asked for personal details: (DO NOT give 1. Full Name, 2. Address and telephone number, 3. School name, 4. Photographs, 5. E-mail address).</p> <p>Understand that some video games are not appropriate for their age.</p>	<p>-Be aware that web sites are not always accurate and that information should be evaluated and checked before it is used.</p> <p>-Develop an alias for online use and understand issues of appropriateness and sharing</p> <p>-Learn that the information they put online leaves a digital footprint or trail.</p> <p>-Understand that if they make their personal information available online it may be seen and used by others.</p> <p>-Know that they need to have appropriate permission for use of images of friends online.</p>	<p>Become aware that file sharing is usually illegal due to copyright laws and can also spread viruses.</p> <p>Acknowledge sources used in their work.</p> <p>Know the importance of not deleting inappropriate electronic communications – saving them for evidence purposes.</p> <p>Understand that you should not publish other peoples' material on the Internet without their permission but you can hyperlink to their websites.</p>	<p>Use a range of sources to check validity and recognise different viewpoints.</p> <p>Know the meaning of some common website extensions –such as .org, .net, ac,.gov,.co.uk, .fr, .com etc</p> <p>Know that https is used for secure transaction such as on-line banking and see a padlock</p> <p>Select copyright free images and sounds.</p> <p>Discuss solutions for dealing with cyberbullying.</p> <p>Understand the severity of the Impact on an individual of sending or uploading unkind or inappropriate content particularly when a wider audience views the content.</p> <p>Understand that you should not publish other peoples' pictures or tag them on the Internet without their permission.</p>
NC programme of study	<ul style="list-style-type: none"> 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 		<ul style="list-style-type: none"> 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. 			
Computer Science	<p>Sequence a number of movement instructions</p> <p>Prediction</p> <p>Directional Language</p> <p>Understand need for accuracy</p> <p>Trial and refinement</p>	<p>Sequence a number of movement instructions</p> <p>Prediction</p> <p>Directional Language</p> <p>Understand need for accuracy</p> <p>Trial and refinement</p>	<p>Sequence a number of movement instructions , understand the need for precision.</p> <p>Simple repetition e.g. for animation.</p> <p>Simple selection – 'when a key is pressed'.</p>	<p>Sequence a number of movement instructions</p> <p>Repetition (Inc. forever)</p> <p>Selection (If. then)</p> <p>Creating procedures (new blocks in Scratch and other software packages).</p>	<p>Sequence a number of movement instructions</p> <p>Repetition (inc forever)</p> <p>Selection (If then. else)</p> <p>Call procedures within procedures (sub-procedures).</p>	<p>Sequence a number of movement instructions</p> <p>Repetition (inc. conditional - repeat until)</p> <p>Selection (If then. else; Else if)</p> <p>Multiple procedures</p> <p>Use of variables which change incrementally</p>

	<p>Simple recording of instructions Begin to understand the term 'algorithm' set of instructions to fulfil a task Understand that computers are controlled by precise instructions.</p> <p>Understand that a problem can be solved through a number of clear steps</p> <p>Follow a set of spoken instructions (an algorithm) accurately when 'playing robot'</p> <p>Give individual 'direct drive' instructions using arrow keys on a floor robot.</p> <p>Use simple algorithms - e.g. Make and test a sequence of instructions into a programmable toy, with a simple keypad, in a creative context, e.g. a journey story.</p> <p>Give simple directional instructions to move a screen character/object</p> <p>Predict what will happen if one or two simple instructions are keyed in sequence to a robot.</p> <p>Explain the cause and effect' of their instructions e.g. 'The robot was on 0 at the number line. We told it to go forward three then back one on the number</p>	<p>Simple recording of instructions Simple Repetition Understanding the concept of a simple input Debugging simple programs Understand the term 'algorithm' and that algorithms can be represented in simple formats.</p> <p>Predict, estimate and create a set of instructions to control devices and achieve specific outcomes e.g. using a floor robot.</p> <p>Test and evaluate a partner's algorithm. Control a floor robot to move involving a sequence of distance and turn</p> <p>Devise their own efficient and consistent notation for recording floor robot movement.</p> <p>Look for patterns in your instructions (algorithms)</p> <p>Understand that you can use a 'repeat' command to 'save time' e.g. compare these two: Algorithm 1 - go forward 4, do that repeatedly until you get back to where you started Algorithm 2 - repeat 4 times - go forward 4, turn right</p> <p>Explain the cause and effect' of their instructions e.g. 'If the floor robot turns right four times, it comes</p>	<p>Simple inputs – e.g. key press, mouse click, 'when a key is pressed, move an object'.</p> <p>Use simple outputs to animate physical models. Write programs using more sophisticated robots and screen coding. Predict what will happen.</p> <p>Save, retrieve, Edit and debug programs.</p> <p>Create a set of instructions / algorithms to control a range of devices to achieve specific outcomes.</p> <p>Control one then multiple sprites to move involving distance and turn; e.g. using Scratch to animate a character in a dance routine, or drive a car/character around a pre-set maze.</p> <p>Use simple repeat instructions, e.g. Repeat 4 [RT90 FD100] to create polygons in Scratch and other coding software.</p> <p>Extend the instruction set to include a wider range of commands e.g. wait, sound, change of costume (in Scratch)</p>	<p>Compare the efficiency of different sets of instructions intended to achieve the same outcome.</p> <p>Create simple variables e.g. move dog 'steps' where 'steps' is the variable and is given a number value.</p> <p>Use multiple sprites. Explain why an algorithm works. Save, retrieve, Edit and debug programs.</p> <p>Create and debug a program to turn on an output depending on whether an input is on/off: e.g. create a Scratch (or other) program to tell an interactive story, with different scenes / conversations and different outcomes depending on what keys(inputs) pressed.</p> <p>Write and edit procedures to produce patterns, use repeat instruction to duplicate shapes. E.g. a flower using more than one polygon and rotating them.</p> <p>Combine procedures and appreciate the need for precision, amend procedures to control a number of output devices.</p> <p>Use a control box to control output to lights / buzzer, motor e.g. lighthouse, in/out sign on door, eyes light up on</p>	<p>Use of more complex variables inc. random variables.</p> <p>Use combinations of inputs and outputs to control physical and simulated models.</p> <p>Control individual and multiple sprites e.g. use of broadcast/ when I receive commands in Scratch and other software.</p> <p>Predict and explain the result of a program.</p> <p>Save, retrieve, edit and debug programs systematically and reliably.</p> <p>Develop skills in creating more sophisticated programs, to incorporate a range of inputs and outputs. E.g. Scratch/Logo to create a general program to draw a polygon of any number of sides.</p> <p>Game-creation with Kodu or Scratch (or another appropriate software)– e.g. Create a 2 player car racing game – multiple sprites move on background, player controls one sprite, outcomes depend on collisions with other sprites.</p> <p>Develop procedures and sub-procedures (e.g. in 'new blocks).</p>	<p>Use more complex combinations of inputs and outputs to control several aspects of physical models.</p> <p>Predict the effects of changing variables.</p> <p>Break a task down and code a procedure for each element, then combine.</p> <p>Program using at least 2 languages – visual (Scratch, Kodu) and textual (Logo, SmallBasic, Python) Demonstrate logical reasoning when debugging a program.</p> <p>Predict the outcome and explain the impact of changes in the code.</p> <p>Design and program a multi user, multi-level game (Scratch or Kodu).</p> <p>Evaluate a partner's coded game, for appeal, usability and efficiency.</p> <p>Use a textual language such as Python to create simple text based games, e.g. an interactive quiz – simple numeracy questions.</p> <p>Control of more complex physical models, multiple sensors and outputs (cross curricular DT).</p>
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	line, that's why it ended at number 2'	back to where it started because it's gone through four quarter turns,' Use 45, 90, 180 degree turns. Extend using any value up to 360 degrees. Edit and debug programmes to change, restructure or improve the outcome.		monster face (cross curricular DT).	Use a control box to animate a model (cross curricular DT).	
Information Technology	<p>Recognise some common uses of information technology beyond school - through an awareness of the vast number of devices, tools and everyday activities that make use of technology.</p> <p>Understand that we use the computer file system, by being able to open work and save it.</p> <p>Create and manipulate digital content, including text, images and sound.</p> <p>Create a simple presentation/interactive story using graphic, text and sound, using a simple presentation program.</p> <p>Enter letters to type their names, use shift for capital letters, spaces full stops. Identify and use key words to describe objects.</p> <p>Use a word bank to create meaningful sentences related to a current topic. Make labels for the</p>	<p>Understand how information technology devices are used in their everyday life and what these devices do in aiding activities beyond school. Be able to explain their functions.</p> <p>Understand an efficient and effective use of a computer and file system, e.g shared area, personal storage or cloud system, for storing their work.</p> <p>Open, save and retrieve work.</p> <p>Create and manipulate the digital content by editing and refining their text, images, video and sound. Control and edit their final product in appropriate and different ways.</p> <p>Develop keyboard skills. Use commas, speech marks, question and exclamation marks. Insert speech bubbles.</p>	<p>Use a range of software with independence</p> <p>Create e-books using simple apps which include images, text sound and video. E.g. Book Creator</p> <p>Present information simply using text, sound, images. e.g. PowerPoint, PhotoStory, Clicker.</p> <p>Create and Edit text effectively with appropriate use of tools e.g. Spell-check, cut and paste.</p> <p>Create images, selecting draw, paint and repeat tools, to communicate moods and ideas.</p> <p>Use music software to create a sequence of musical phrases. Adapt and refine for a purpose, e.g. a class performance.</p> <p>Shoot film, exploring a range of techniques e.g. long and close up shots.</p>	<p>Select individual software applications independently. Combine software, supported by the teacher.</p> <p>Present results of a research project in presentation format, record sound, add video.</p> <p>Use a variety of colour / texture / brush or pencil medium tools within an art/design program to create a final image. Import images using scanners and cameras.</p> <p>Record short video clips, combine and edit film, adding titles and credits.</p> <p>Explore stop-frame animation using toys, card or plasticine models.</p> <p>Analyse data and present to the audience graphically - including bar graphs and pie chart formats. Enter data and formulae +/- into cells, modify data, make predictions of changes and check results. Use sum, sort functions and formulae as relevant.</p>	<p>Combine software independently</p> <p>Plan a product using a range of online and offline resources hyperlinks.</p> <p>Develop typing and text editing skills, e.g. search and replace, header/footer, word count to support extended writing in Literacy and across the curriculum.</p> <p>Create film footage independently, e.g. model animation movie, with titles and transitions.</p> <p>Develop film making skills, making appropriate use of camera shots. Select and add a soundtrack.</p> <p>Create a database structure, collect data and enter information. Carry out complex searches to check hypotheses. Use 'And', Or '=and' and '=>' in their searches. Recognising poor quality information leads to unreliable results.</p>	<p>Select a range of suitable software independently on pcs and mobile tablets to address a complex task/problem.</p> <p>Independently design a Multimedia presentation as part of a broad project. Refine and present a set of linked pages, incorporating images, sound and text. Presentation to match the needs of the audience. E.g. publish e-books for younger readers.</p> <p>Develop higher level text editing skills.</p> <p>Edit and adapt digital photos for art and design objectives, using cropping, layering, colour and texture enhancing functions.</p> <p>Develop screenplay, film edit and produce movie for end of school year.</p>

	<p>classroom, objects or subject theme.</p> <p>Create simple pictures, line and fill, paint effect (e.g spray) tools</p> <p>Use a basic digital camera/webcam, upload images into simple software, explore effects.</p> <p>Round sound independently e.g using computer, microphone, tablet/iPad, IWB recording software.</p> <p>Collect, organise simple data. Make and discuss comparisons. Enter data into a simple pictogram.</p> <p>Use a simple branching database, sort objects according to one criterion.</p> <p>Talk about their use of the internet and other methods to find information and how technology can give access quickly to a wide variety of sources.</p> <p>Log in, Log off safely</p>	<p>Edit and correct your own text, to produce an improved draft.</p> <p>Select font size, colour, style purposely.</p> <p>Present appropriate and accurate text in the context of a theme relevant to a curriculum area.</p> <p>Create, save and modify pictures, selecting appropriate brush size, texture, spray, shape and palette etc.</p> <p>Select an appropriate device for a particular purpose. (e.g tablet, stills camera, moviecam, sound recorder etc.)</p> <p>Create a simple stop motion /storyboard animation on a PC or tablet/iPad.</p> <p>Collect, organise, classify and analyse data in a simple database</p> <p>Enter data into a premade database, with a small number of fields. Sort the data in one field in numerical/alphabetical order. Use a search tool to find the answers to simple questions, present findings verbally.</p> <p>Add a new object to an existing branching database, suggesting appropriate questions with</p>	<p>Edit video, combining narration and titles.</p> <p>Collect data to enter into a spreadsheet/database to organise data in tabular form and represent in graph form.</p> <p>Select colour, cell size, text and number format appropriately. Understand and use terminology– columns, rows, cells, cell reference.</p> <p>Copy and paste images/text from the internet.</p>	<p>Record physical data systematically using a data logger.</p> <p>Learn that a line graph can represent change. E.g. Make good containers to keep baked potatoes warm, test and evaluate using temp sensors, interpret trends seen in resultant graphs.</p>	<p>Choose the appropriate form of graph to represent the information searched from the database.</p> <p>Use spreadsheets to explore variables to solve problems, by using filter and sort functions, formulae, graphing and presenting data. Copy formula to create tables of results. Present data well, with appropriate ranges, labelling axes and title.</p> <p>Appreciate how search results are selected and ranked.</p> <p>Understand that the internet is a global computer network, and the world wide web.</p>	<p>Create and amend a spreadsheet to solve a problem.</p> <p>Identify and enter the correct formula into cells, modify the data. Make predictions of changes and check them. Use auto filter to retrieve information and creating a graph from the retrieved information</p> <p>Understand the difference between discrete and continuous data. Display and interpret data selecting bar charts, pie charts, scatter graphs and line graphs appropriately.</p> <p>Publish appropriate and considered material on blogs and learning platforms.</p>
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		<p>yes/no answers. Explain their strategies.</p> <p>Use a teacher selected search engine to find information using agreed key words to answer questions under the guidance of adults. Be able to navigate to a website by entering a simple web address into a browser.</p>				
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