Crawley Ridge Junior School Skills Progression
Computing

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

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 3	Year 4	Year 5	Year 6
Themes	Online Safety Connecting Computer Sequence in music Branching Database Desktop Publishing Animation Coding (Events and Actions)	Online Safety Computer Networks Audio Editing Repetitions in shapes Data Logging Photo editing Coding-Repetition in games	Online safety Sharing Information Selection in Physical computing Flat file data base Vector Drawing Video editing Questions and user input (Coding)	Online Safety Computer networks Creating own website Variables in games Introduction to spreadsheets 3d Modelling Sensing
Algorithms	Use logical reasoning to explain how a simple algorithm works	Detect and correct errors in algorithms and programs (debug)	With support, begin to produce algorithms by logical and	Produce algorithms independently using

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			appropriate structures to organise data, and create precise and accurate sequences of instructions	logical and appropriate structures to organise and record data
Computational thinking	Use a sequence, selection and repetition in program.	Test programs using models and simulations. Design and write programs that accomplish specific goals, working with variables for input and output	Use flowcharts to follow how a process or model works	Create flowcharts and other diagrams to explain how a process or model works
Problem solving	Analyse and tackle problems by breaking down into smaller parts.	Use logical reasoning to detect problems, make changes and find out what happens as result	Use logical reasoning to solve problems and model situations and processes. Predict what will happen when variables and rules within a model are changed	Independently problem solve and model situations ad processes, by understanding and explaining the impact of changing variables and rules within a model
Networks: Knowledge and understanding	Demonstrate a knowledge of computer systems and different hardware available. Be able to recognise these systems within and outside the school.	Demonstrate knowledge and understanding of computer hardware and how computers are supported by input, output and storage devices.	Demonstrate knowledge and understanding of computer systems and hardware by identifying and defining the functions of the processor, memory, backing storage and peripherals in a typical desktop computer	Demonstrate knowledge and understanding of how networks work by describing the types of service offered (e.g. through email, www, ftp and video conferencing)
Networks: Using and applying	Be able to use a range of search engines and be effective in discovering the relevant information. To be able to use touch-typing to support quick research skills.	Create programs to control physical systems. Discuss opportunities for online communication and collaboration	Select, use and combine a variety of software, including internet services on a range of digital devices, explaining how email and online discussion area are used for communication and collaboration	Design and create/use a range of programs to accomplish given goals

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Digital literacy: Knowledge and understanding	Become discerning in evaluating digital content	Evaluate the quality and success of their solutions. Check for plausibility and usefulness of information they find	Understand the need for accuracy when searching for and selecting information. Use different sources to double check information found	Take account of accuracy and potential bias when searching for and selecting information
Digital literacy: Using and applying	Identify and select appropriate information using straightforward lines of enquiry. Use different approaches to search and retrieve digital information, including the browser address bar and shortcuts	Use and combine a variety of software and internet services on a range of digital devices to accomplish given goals, including collecting, analysing, evaluating and presenting data and information	Prepare and present information in a range of forms, using ICT safely and responsibly	Evaluate and improve presentations in the light of discussion, marking and audience response
Online safety: Personal knowledge and understanding	Identify ways to keep safe when using ICT. Think before sending and suggest consequences of sending/posting	Recognise social networking sites and social networking features built into other things, such as online games and handheld games consoles. Make judgements in order to stay safe whilst communicating with others online	Judge what sort of privacy settings might be relevant for reducing different risks. Judge when to answer a question online and when not to	To be able to spot any concerning signs when online and have the knowledge of what to do if ever a situation online becomes distressing. Use of CEOP to support.
Online safety: Responsibilities	Recognise online behaviours that would be unfair. Show respect for individuals and intellectual property	Know who to tell if anything worries them online. Identify potential risks when presented with scenarios including social networking profiles. Use ICT responsibly, safely and securely	Be a good online citizen and friend. Articulate what constitutes good behaviour online. Find and cite the web address for any information or resource found online	Discuss scenarios involving online risk. State the source of information found online. Act as a role model for younger children
Data: Knowledge and understanding	Understand how to select information to put into a data table. Recognise which information is suitable for their topic	Describe how to sort and organise information to use in a database.	Describe how to check for and spot inaccurate date. Know which formulas to use to change a spread sheet model.	Explain that changing the numerical data affects a calculation

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Data: Using and applying	Design a questionnaire to collect information	Create a branching database from information which they have collected and sorted	Create data collection forms and enter data from these accurately. Make graphs from the calculations on their own spread sheet	Create data collection forms and enter data from these accurately. Make graphs from the calculations on their spread sheet